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INDIAN MINES ACT, 1923

ANNUAL REPORT

OF THE

CHIEF INSPECTOR OF MINES IN INDIA

FOR THE YEAR ENDING

31st DECEMBER 1932

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1933

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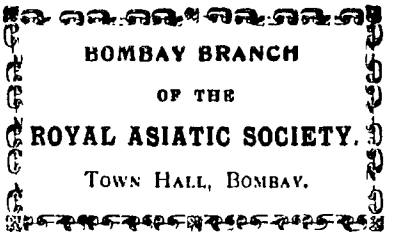

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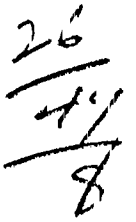

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FROM

D. PENMAN, ESQ., D.Sc., F.R.S.E.,

CHIEF INSPECTOR OF MINES IN INDIA.

To

THE SECRETARY TO THE GOVERNMENT OF INDIA,
DEPARTMENT OF INDUSTRIES AND LABOUR,
SIMLA.

Dated Dhanbad, the 21st May 1933.

SIR,

I have the honour to submit the report upon the inspection of mines in British India for the year ending 31st December 1932.

INTRODUCTION.

The Indian Mines Act, 1923, applies to British India only and not to the Indian States. For the complete figures of production of all minerals raised from excavations of all depths in British India and the Indian States reference may be made to the statements of the "Mineral Production of India" published annually in the Records of the Geological Survey of India, and to the "Quinquennial Review of the Mineral Production of India" published every five years by the same Department. Detailed information of the mineral industries in Mysore—where the Kolar goldfield is situated—and Hyderabad (Nizam's Dominions) is given in the annual reports of the Chief Inspectors of Mines in those States.

Section I.—Persons employed.

During the year 1932 the daily average number of persons working in and about the mines regulated by the Indian Mines Act was 204,658, as compared with 230,782 in the previous year. The decrease was 26,124 persons, or 11·32 per cent. Of these persons 110,907 worked underground, 41,017 in open workings and 52,734 on the surface. The numbers of men and women,

respectively, who worked underground, in open workings and on the surface were as follows :—

	Men.		Women.	
	1932.	1931.	1932.	1931.
Underground	96,196	98,885	14,711	16,841
In open workings	30,256	38,833	10,761	16,079
Surface	39,899	45,157	12,835	14,987
Total	166,351	182,875	38,307	47,907

The number of women employed underground was 14,711, or 13·26 per cent. of the total number of men and women employed underground. The percentage of women employed underground in coal mines was 14·84, as compared with 16·81 per cent. in 1931, 18·39 per cent. in 1930, 23 per cent. in 1929 and 29 per cent. in 1928. The provincial distribution of the women who worked underground was as follows :—

Province.	Number of women employed underground.		
	In coal mines.	In salt mines.	Total.
Bengal	5,060	..	5,060
Bihar and Orissa	8,827	..	8,827
Central Provinces	696	..	696
Punjab	..	128	128
Total	14,583	128	14,711 in 1932. as compared with 16,841 in 1931.

The number of persons employed in coal mines was 148,489, which is 9,778 less than the number employed in 1931. Of these persons, 45,659 were males employed in cutting coal, 16,582 were males employed as loaders of coal and 26,847 were women.

Figures showing the average output of coal per person employed are given below :—

	Tons of coal per person employed.			
	Underground and in open workings.		Above and below ground.	
	1932.	1930-31.	1932.	1930-31.
British India	176	189	126	132
Bengal and Bihar	179	193	128	135
Assam	127	108	92	80
Baluchistan	81	73	72	60
Central Provinces	160	162	117	116
Punjab	87	93	55	54

There was a further fall in the average output of coal per person employed. The average is the lowest since 1926. The decline may be ascribed partly to the lessened proportion of coal mined by coal cutting machines and partly to a reduction in the number of days worked per week at the pits. In comparing the figures with similar figures in other countries it should be remembered that both men and women are employed in Indian coal mines. In 1931 the output of coal per person employed above and below ground in the United Kingdom was 253 tons. In 1930 comparative figures in certain other countries were Japan 151 tons; France 177 tons; Germany 299 tons and the United States of America 737 tons.

The number of persons employed in metalliferous (including mica, stone, clay and salt) mines was 56,169 which is 16,346 less than the number employed in 1931. 44,709 were men and 11,460 were women. Of the women 128 worked underground in salt mines.

Bengal Bihar and Orissa.—In Bengal and Bihar and Orissa there was an ample supply of mining labour. There was a general reduction in the rates paid to workmen. The weekly earnings of many miners was also adversely affected by the fact that many collieries only worked three and four days per week during a considerable part of the year. A number of collieries had again to close down owing to the lack of demand for the coal produced by them. The low price of foodstuffs to a considerable extent alleviated the condition of the work people. In spite of the depressed condition of trade the relations between employers of labour and workmen were amicable. There was, however, a strike against the reduction of wages at Jamadoba colliery belonging to Messrs. The Tata Iron and Steel Company, Limited. The strike lasted from 19th June to 16th July on which date the workmen returned to work on the terms and conditions of the company. The general health of persons living within the Raniganj and Jharia Mining Settlements was on the whole satisfactory. There were fewer cases of cholera and fewer deaths from that disease in both of the Mining Settlements than in the previous year. There was, however, an increase in the number of cases of small-pox and the number of deaths from that disease. In the area administered by the Asansol Mines Board of Health, concentrated efforts at vaccination and re-vaccination, prompt isolation and segregation helped greatly to check the spread of the disease. Adequate measures were also taken by the Jharia Mines Board of Health. An account of the activities of the Mines Board of Health in the Raniganj and Jharia coalfields is given in Section V of this report from which it will be seen that the activities of both the Boards have been maintained and extended.

The iron ore mines in the Singhbhum district were greatly affected by the depressed state of the market for pig iron with the result that the number of workmen employed was a very small percentage of the normal. The earnings of those still in employment were also less than in the previous year owing to the reduction in rates. The relations between employers and workmen were amicable.

At The Tata Iron and Steel Company, Limited's Noamundi iron mine the incidence of malaria has been decidedly reduced by improved sanitation and anti-malaria campaign in the areas under the control of the company Considerable improvement has also been effected in the housing of labour.

At the copper mines in the Singhbhum district the supply of labour was again in excess of the demand. There were no strikes but there was a slight tendency towards reduction of wages owing to the abundance of labour. There was no outbreak of epidemic disease and there has been a material decrease in the number of malaria cases reported.

At the mica mines in Chota Nagpur the supply of labour was plentiful and there was a further reduction of wages. There were no strikes during the year. There was a small outbreak of small-pox at Debour and a pernicious type of malaria seems to be on the increase.

Assam.—In Assam there was a plentiful supply of labour and wages were slightly reduced. In spite of the reduction of wages there were no strikes and the employees of the company accepted the necessary reduction without dispute.

Central Provinces.—In the Pench Valley Coalfield there was a distinct shortage of labour in the last quarter of the year. This was partially met by recruitment from outside districts. There was little alteration in the rate of wages. There was no strike; the relations between labourers and employers were good. There was an epidemic of small-pox during the hot weather and in the monsoon period. The total number of cases was 63 of which six were fatal. The incidence of malaria was above the average in October and November. Active prophylactic measures were taken by the medical departments attached to the mines in respect to the organised distribution of quinine to the workpeople. Measures were taken also to clear the undergrowth in known breeding grounds. Additional equipment was provided in the main colliery hospital of the Pench Valley Coal Company, Limited, and the Amalgamated Coalfields Limited, and a nurse was employed for attendance on women labour. The price of foodstuffs was slightly under that for the previous year.

The year was an extremely bad one for the manganese industry as is shown by the figures of the output of manganese given elsewhere in this report. Many of the mines had to be closed down entirely with the result that a great many workpeople were thrown out of employment.

Punjab.—There was no appreciable change in the labour conditions in the Punjab. The labour supply was abundant. In order to relieve the unemployment question at Khewra miners were permitted and indeed encouraged to take up construction work on contract and practically the whole of the construction work at the Khewra salt mine during the year was carried out by gangmen or miners who formed themselves into small private companies for the purpose of executing this class of work. In my last report reference is made to a system under which each miner was employed for no longer than a fortnight in the month. The system was continued. In this way the amount of employment available was distributed over as large a number of workmen as possible. The investigation in respect of the incidence of anaemia at Khewra indicated that the number of persons seriously affected was about 6 per cent. while about 50 per cent. of the community was slightly affected. In order to mitigate the effect of this disease it is proposed to erect a shop for the supply of vegetables. It is not clear, however, to what extent this proposal would be efficacious as

the miners can, if they wish, procure vegetables at present at very reasonable rates. During the year thirty houses were built and Government sanctioned a sum of Rs. 47,500 as recoverable and Rs. 2,500 as non-recoverable advances. The standard of the school at Khewra was raised to the Anglo-Vernacular standard. In addition a girls' school was established. The attendance at the boys' school at the end of the year was 362 and at the girls' school 41.

Madras.—At the mica mines in the Nellore district labour was plentiful and there were no strikes or epidemics.

Burma.—At the mines in the Northern Shan States worked by the Burma Corporation Limited there was at no period of the year any shortage of labour. The average daily number of employees in all departments of the Company's activities was 9,387. There were no strikes. The anti-malarial measures at Namtu and Bawdwin were continued throughout the year with beneficial results. The general health of the Settlement at Namtu and Bawdwin was good. The facilities for recreation and games include a cinema and a swimming pool. The price of foodstuffs was about the same as last year.

The supply of labour in the Tavoy and Mergui districts was ample. In the Tavoy district a larger proportion of the labour employed consisted of Burmese. Health conditions were generally good and the relations between workmen and employers were amicable.

The statistics furnished in this report show that the number of women employed underground is well below the permissible percentage on 1st July 1932. In some coal mines very few women are now employed. For example in one colliery in the Jharia coalfield women have been totally excluded since 1st March. It is stated that the output per shift per person employed underground has increased from 2·7 tubs to 3·5 tubs since the exclusion of women. In one large colliery in the Raniganj Coalfield no women are employed in depillaring operations.

In the table on page 6 figures are given of the average daily wages paid in December in each important mining field in India. If the figures are compared with those in a similar table in last year's Annual Report it will

Average daily earnings in December 1932.

Mineral Field.	Underground.										Open workings.										Surface.							
	Overmen and Sirdars — Foremen and Mates.			Miners			Loaders.			Skilled Labour.			Unskilled Labour.			Females			Overmen and Sirdars — Foremen and Mates.			Miners.			Loaders.			Skilled Labour.			Unskilled Labour.			Females.			Clerical and Supervising staff.			Skilled Labour.			Unskilled Labour.			Females.		
	R	a.	p.	R	a.	p.	R	a.	p.	R	a.	p.	R	a.	p.	R	a.	p.	R	a.	p.	R	a.	p.	R	a.	p.	R	a.	p.	R	a.	p.	R	a.	p.	R	a.	p.	R	a.	p.	R	a.	p.	R	a.	p.
Jharia Coalfield (Bihar and Orissa)	1	3	0	0	9	9	0	8	6	0	10	9	0	7	9	0	6	6	0	14	9	0	8	6	0	7	9	0	10	0	0	7	9	0	7	0	1	3	0	0	10	9	0	7	0	0	5	3
Raniganj Coalfield (Bengal)	1	0	6	0	9	3	0	8	0	0	10	9	0	7	6	0	5	9	0	13	9	0	6	0	0	5	6	0	6	0	0	5	0	0	4	0	1	0	3	0	9	9	0	7	3	0	4	9
Giridih Coalfield (Bihar and Orissa)	1	7	9	0	9	9	0	7	0	0	10	6	0	8	0	0	5	9	0	13	6	0	8	0	0	5	0		...		0	6	0	0	5	0	1	7	6	0	11	9	0	8	0	0	5	3
Assam Coalfields	1	7	0	1	4	9	1	1	6	1	2	0	0	15	0		...			...			...			...			...			...			...		2	0	0	1	0	0	0	11	9	0	8	0
Punjab Coalfields	0	14	0	0	12	6	0	14	9	0	11	6	0	7	0		...		0	11	9		...			...		0	6	9		...		0	15	0	0	14	0	0	9	3	0	4	3
Baluchistan Coalfields	1	6	9	0	13	3	0	13	0	0	12	6	1	0	0		..			...			...			...			...			...		1	6	0	0	13	9	1	0	0		...			
Pench Valley Coalfield (Central Provinces).	1	5	6	0	14	0	0	6	9	0	10	6	0	6	9	0	6	9		...			...			...			..			...		1	4	3	0	12	9	0	6	9	0	5	0
Bihar and Orissa Mica	0	9	9	0	5	9		...		0	5	3	0	4	0		...		0	7	9	0	5	6		...		0	5	3	0	3	9	0	3	9	1	7	9	0	7	9	0	4	3	0	2	9
Madras Mica	0	10	9	0	5	9		...		0	6	6	0	4	9		...		0	9	3	0	5	6		...		0	3	6	0	4	3	0	3	6	0	10	6	0	6	0	0	4	6	0	3	0
Central Provinces Manganese	1	4	0	0	7	0		...			...			...			...		0	14	0	0	5	3		...		0	8	3	0	5	0	0	3	9	2	6	0	0	12	9	0	6	0	0	3	9
Central Provinces Limestone		...			...			...			...			..			...		0	12	9	0	4	3		...		0	9	0	0	4	6	0	3	3	1	3	3	0	10	9	0	6	6	0	2	6
Bihar and Orissa Iron		...			...			..			...			...			...		1	2	6	0	4	6		...		0	9	8	0	4	6	0	3	0	1	8	3	0	15	6	0	4	0	0	3	0
Burma Lead	15	4	9	2	1	3		...		1	12	3	1	9	6		...		4	4	3		...			...		0	14	3		...		3	5	0	2	4	9	1	1	9		...			
Burma Tin	5	9	6	1	0	9		...		0	14	0	0	13	0		...		1	14	3	1	1	3		...		1	1	0	0	13	6	0	7	9	2	9	6	1	6	3	0	7	9	0	6	9
Punjab Salt	5	11	9	2	5	0		...		1	0	3	0	13	3	0	8	0	1	3	3	0	10	0		...			...			...			...		0	12	0	1	7	0	0	10	3		...			
Bihar and Orissa China Clay		...			...			...			...			...			...		0	6	3	0	3	9		...		0	6	9	0	3	6	0	2	6	0	13	6	0	6	9	0	3	3	0	2	0
Punjab Slate		...			...			...			...			...			...		0	8	3	0	5	6½		...		0	6	6	0	4	9		...		1	6	6		...		0	6	9		...	
United Provinces Stone		...			...			...			...			...			...		0	12	6	0	9	0		...		1	0	0	0	9	0	0	7	6	1	0	6	0	3	3	0	3	3	0	2	6

be seen that there has been a further general reduction in wages. The wages of coal miners in Jharia and Raniganj Coalfields decreased by over 15 per cent., and those of coal miners in Giridih by 22 per cent. The wages of coal miners in the Punjab were the same as in the previous year and in the Pench Valley coal mines the fall in wages was slight. There was a reduction in the wages paid to miners in mica, manganese, iron and limestone mines. In Burma lead mines miners appear to have enjoyed an increase in daily wages.

Recommendations of Royal Commission on Labour.

In June, meetings of representatives of employers, workmen, and the inspectorate were held in Sitarampur and Jharia to consider systems of selecting women for exclusion from the underground workings of coal mines.

From reports that I have received mineowners in the two major coalfields and in Assam are making a conscientious effort to put into practice the recommendation of the Royal Commission on Labour that wages should be paid on a working day and not on a rest day.

At the time of writing information has been received that Government has taken action on the recommendations of the Royal Commission on Labour with respect to (*a*) the appointment of provincial and district public health officers as Inspector of Mines and (*b*) a yearly return of the total number of workmen employed wholly or part time in coal mines.

SECTION II.—Output of Minerals.

Coal.

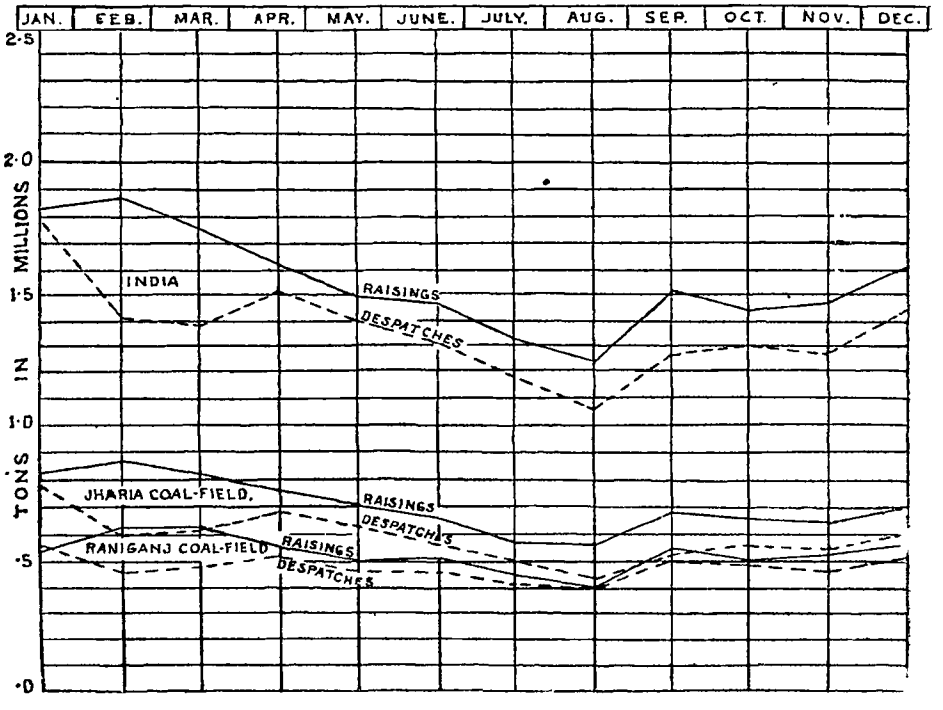
Output.—The statement given below shows the output of coal in the various provinces in British India during the years 1931 and 1932.

	Output in tons.	
	1932.	1931.
Assam	208,802	274,278
Baluchistan	13,957	13,472
Bengal	5,782,603	5,810,184
Bihar and Orissa	11,592,130	13,388,783
Central Provinces	1,049,238	973,040
Punjab	72,857	54,840
Total	18,719,587	20,514,597

The total output in 1932 was 18,719,587 tons of a declared value of Rs. 6,22,41,775. The decrease in the output was 1,795,010 tons, *i.e.*, 8·75 per cent. The opening stocks in 1932 were 1,371,530 tons and the closing

stocks 1,664,969 tons. In the chart which appears below the raisings and despatches of coal are shown month by month.

RAISINGS AND DESPATCHES OF COAL MONTH BY MONTH IN 1932.



It will be seen that as usual the maximum output was obtained in February and the minimum in August. It was only at the beginning of the year and only in the case of the Raniganj Coalfield that despatches exceeded the raisings.

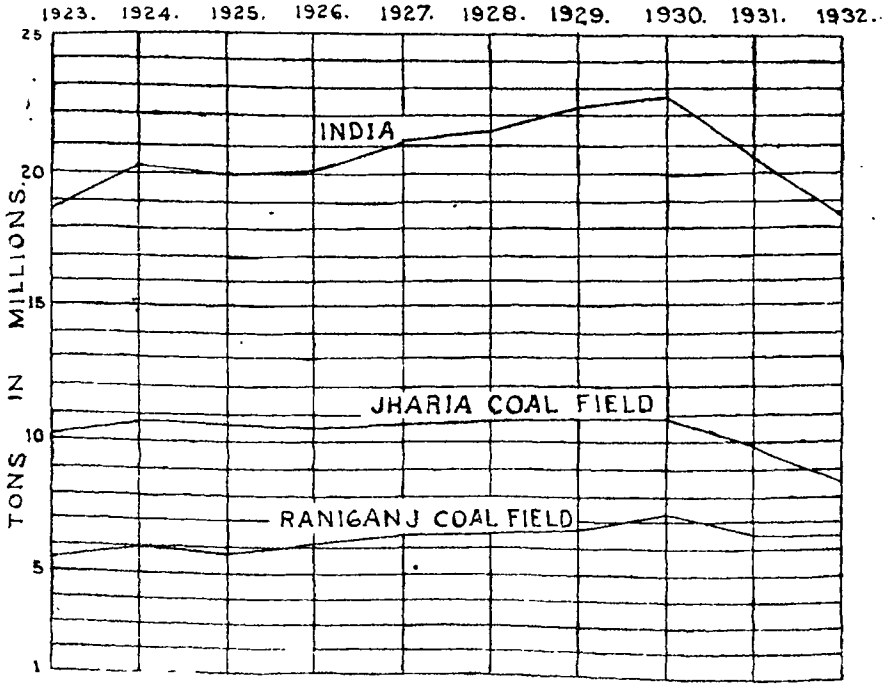
The output in Bihar and Orissa decreased by 1,796,653 tons, and in Bengal there was a decrease of 27,581 tons. In the Central Provinces the output increased from 973,040 tons to 1,049,238 tons. There was an increase of 18,017 tons in the Punjab and a small increase in Baluchistan. There was a considerable decrease in Assam.

The figures of output for the principal coalfields are as follows :—

Coalfield.	1932.	1931.	Percentage of increase + or decrease —.
Jharia	8,551,283	9,755,037	—12·34
Raniganj	6,419,007	6,530,713	—1·71
Bokaro	1,348,973	1,656,597	—18·57
Giridih	583,243	713,133	—18·21
Karanpura	409,566	461,678	—11·29
Pench Valley	831,817	750,015	+10·91
Assam	208,802	274,278	—23·87

The output of the Jharia Coalfield fell by more than 12 per cent. and the Bokaro and Giridih Coalfields by more than 18 per cent. while the output of the Assam Coalfield fell by nearly 24 per cent. The only field of importance in which there was an increase was the Pench Valley Coalfield. It is worthy of note that the decrease in the output in Bihar and Orissa exceeded the aggregate decrease for the whole of British India. In the Jharia Coalfield the decrease was probably due in part at least to the disadvantage at which the coalfield is placed with regard to freight to distant parts of India. In the Bokaro and Giridih coalfields the reduction was due mainly to voluntary restriction of output at the railway collieries. The accompanying chart shows the variation of the output of coal during the period 1923-32 :—

CHART SHOWING OUTPUT OF COAL DURING THE PERIOD 1923-32.



Despatches.—The despatches of coal were 16,152,757 tons, and 1,087,991 tons, or 5·81 per cent. of the raisings were consumed on the collieries. The quantity of coal used for coking at the collieries was 1,185,400 tons, and 760,228 tons of soft coke and 61,021 tons of hard coke were made. There was a small increase, *i.e.*, 4·98 per cent. in the quantity of soft coke manufactured at the collieries for domestic consumption; the increase may perhaps be attributed largely to the valuable propaganda work done by the Indian Soft Coke Cess Committee. The quantity of hard coke made at the collieries is small. Most of the hard coke is made at coke making plants which do not come under the Mines Act, and 1,442,903 tons of coal were despatched to coke making plants of this kind in 1932. This quantity is 129,125 tons less than in 1931. Analyses of the figures relating to the output of coal and the manufacture of coke will be found in Appendix I, Table No. 3.

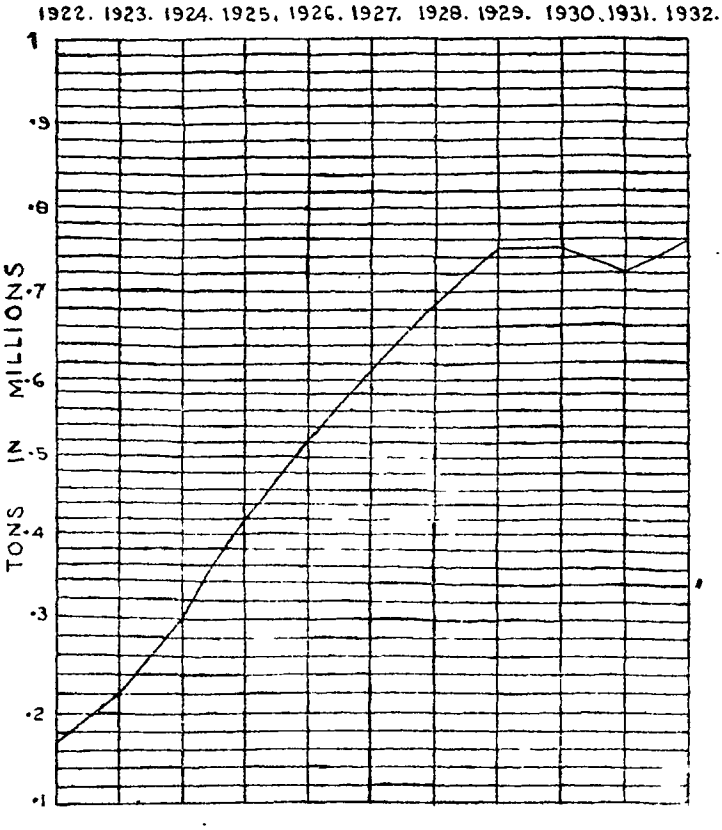
The following figures giving the average value per ton of coal put into wagons in various districts may be of interest:—Assam, Rs. 10 as. 13·2; Baluchistan, Rs. 8 as. 2·6; Bengal, Rs. 3 as. 4·4; Bihar and Orissa (Jharia Coalfield) Rs. 3 as. *nil*; Central Provinces, Rs. 3 as. 12·9; and the Punjab, Rs. 5 as. 4·1. In every case, except in the Punjab, the values are from four to eight annas lower than in 1931. In the Punjab the value was seven annas higher.

Trade Conditions.—At the beginning of the year and as the result of a measure of common agreement amongst the chief mineowners prices of coal were fairly steady but, as the year progressed and the output of coal exceeded the demand, rates began to fall so that towards the end of the year prices had fallen considerably. In the Central Provinces, in contradistinction to what was taking place in other districts, there was a fairly steady demand for coal and prices did not fall to the same extent as in some other districts. Shipments of coal from Calcutta showed a slight increase over the previous year due mainly to the fact that it was found cheaper to send coal to the western ports of India by sea rather than by rail. Shipments to Hongkong, however, fell away and exporters found it increasingly difficult to compete with Natal coal which is again finding a market in Singapore and Colombo. As is evident from the considerable reduction in output the demand for coal throughout India was considerably less than in the previous year and it is not likely that any general improvement in the conditions of the trade will be brought about until there is a general trade revival.

Coal Grading Board and Soft Coke Cess Committee.—The work of the Indian Coal Grading Board was continued during the year and maintained the same high standard. The quality of coal exported was generally excellent. During the year 2,226,523 tons of coal were exported under the supervision of the Board. The Indian Soft Coke Cess Committee continued to carry on extensive house to house propaganda in Northern and Western India. New propaganda centres and established selling depots for soft coke were opened in the principal towns and also in Rangoon. During the year 756,036 tons of soft coke were despatched from the coalfields; out of this quantity 694,224 tons were despatched from the Jharia Coalfield. The seams in the Jharia Coalfield provide the chief source of this important

domestic fuel. The accompanying graph gives an indication of the development of the soft coke industry during the last ten years :—

DESPATCHES OF SOFT COKE FROM 1922 TO 1932.



USE OF ELECTRICITY BOTH AT COAL MINES AND AT OTHER MINES.

The number of coal mines using electrical energy was 124, the same as in the previous year, and the aggregate horse power employed at coal mines decreased slightly from 81,298 to 80,721. During the year electrical plant was installed and brought into operation in three additional coal mines; electrical plant was withdrawn from one mine and two mines using electricity were closed.

Electricity was used at 15 metalliferous mines, as against 18 mines in 1931, and 22 in 1930, and the aggregate horse power employed was 8,371, showing a further decrease from last year of 7·8 per cent.

Statistics of the electrical plant in use at mines in the various provinces of British India and in certain mine fields are contained in Appendix I, Tables Nos. 7, 8 and 9.

Explosives.—During the year 2,290,142 lb. of gunpowder, 71,526 lb. of high explosives, and 119,695 lb. of "permitted" explosives were used at coal mines. These figures compare with 2,496,777 lb. of gunpowder, 233,093 lb. of high explosives and 135,119 lb. of "permitted" explosives used in 1931. In addition 44,699 lb. of liquid oxygen explosives were used. This is the first record of liquid oxygen explosives being used in coal mines in India. The use of the explosive has so far been confined to the East Indian Railway collieries at Giridih and at Bokaro, and the collieries at Kargali and Jarangdih in the Bokaro coalfield. This explosive is one in which the strength can be varied. It has, therefore, been classified separately. It is not at present a "permitted" explosive but may be varied in strength so as to do work of the same nature as that suitable to gunpowder or to a high explosive. It will be interesting to see the extent to which the use of this explosive develops. A statement of the kind and quantity of explosives used during the year in the different kinds of mines under the Act is given in Appendix I, Table No. 12.

Coal Cutting Machines.—The number of coal cutting machines in use decreased from 195 to 157, *i.e.*, a decrease of 38 machines. Of the machines in use 154 were worked by electricity and 3 by compressed air. Fifty-two machines were at work in the Jharia coalfield, 95 in the Raniganj coalfield, 3 in the Bokaro coalfield, 4 in the Karanpura coalfield and 3 in the Central Provinces. The decrease in the number of machines in use is accounted for almost entirely in the Jharia coalfield in which 33 machines were withdrawn during the year. One reason for the withdrawal of the machines is the low price of coal and the reduction of output as unless there is a fairly large output and a constant demand for coal the use of coal cutting machines, as a rule, results in higher working costs. A contributory cause is a decrease in the amount of development work being done. Coal cutting machines were in use in 52 mines, as against 63 mines in 1931, and the total area undercut was 10,017,873 square feet, as compared with 10,888,305 square feet undercut in the previous year. In many mines intensive machine mining was practised and in these mines the greater part of the output was obtained by machines. Intensive machine mining consists in concentrating the work in a comparatively small area and so increasing the rate of extraction within that area. By this method the output is concentrated and supervision charges decreased.

Mechanical Ventilators.—In Appendix I, Table No. 10, particulars are given of the number of mechanical ventilators in use in coal mines under the Act. In 1932, 90 mechanical ventilators were in use, the number being 92 in the previous year.

Safety Lamps.—In Appendix I, Table No. 11, particulars are given of the number of safety lamps in use in coal mines under the Act. Twenty-three thousand five hundred and ninety-three safety lamps were in use in 1932, as compared with 23 071 in 1931.

Iron Ore.

The production of iron ore was 673,434 tons, valued at Rs. 15,64,504, as compared with 590,176 tons in 1931.

Manganese Ore.

There was a decrease of more than 74·63 per cent. in the output of manganese ore, the figures of production being 88,119 tons, valued at Rs. 5,35,347, as compared with 347.373 tons in 1931. The average reported value per ton of manganese ore produced fell from Rs. 7·36 in 1931 to Rs. 6·07 in 1932. The corresponding value in 1930 was Rs. 14·64. The position of the manganese industry grew steadily worse during the year and 1932 was the worst year that the manganese industry in the Central Provinces has experienced for many years. By the end of the year production at most of the mines had been stopped and all staff and labour were dispensed with except sufficient men for the care and maintenance of the properties and to attend to the small despatches from existing stocks. The prices of ore were so low and the demand so small that the majority of the mines in the Central Provinces could not be worked at a profit. In September the Bengal Nagpur Railway Company announced a reduction in railway freight to Calcutta, Vizagapatam and Bombay. The Railway freight to Vizagapatam is now calculated on the same basis as the freight to Calcutta and it is likely that in the near future advantage will be taken of the saving in railway freight to ship at Vizagatapam in preference to Calcutta and Bombay.

Lead-Silver Ore.

The output of lead-silver ore from the Bawdwin mine in the Northern Shan States, Burma, was 372,586 tons, as compared with 397,679 tons in 1931. The decrease was 6·31 per cent. 70,560 tons of refined lead; 642 tons of antimonial lead; 5,998,956 ounces of refined silver; 9,729 tons of copper matte; and 3,580 tons of nickel speiss were produced. The experimental zinc plant at the Namtu mill produced 44,484 tons of zinc concentrates.

The average values of metals extracted were as follows:—Refined lead, Rs. 154-9-4 per ton; refined antimonial lead, Rs. 137-4-8 per ton; and refined silver, Rs. 1-0-7 per troy ounce.

The quantities of materials used for the purpose of fluxes were as follows:—Iron ore, 23,864 tons; limestone, 17,903 tons; quartz rock, 531 tons; and iron pyrites, 13 tons.

Gold.

The output of gold in 1932 was 50 ounces which was obtained from the Kundarkocha mine in the Singhbhum District of Bihar and Orissa. Prospecting work was also done during the year at the Mwedaw gold mine near Libyin in the Southern Shan States, Burma. The increase in the price of gold has given an impetus to the search for that metal.

Tin and Wolfram Ores.

The output of tin ore was 2,957 tons, valued at Rs. 29,45,480, as compared with 2,552 tons in 1931. 848 tons of wolfram ore valued at Rs. 2,95,093 were produced, as compared with 969 tons in 1931.

Chromite Ore.

The production of chromite ore was 7,866 tons, valued at Rs. 1,12,392, as compared with 14,938 tons in 1931.

Copper Ore.

The output of copper ore was 175,375 tons, valued at Rs. 25,15,980, as compared with 153,636 tons in 1931. Except for 365 tons produced at Nellore in Madras the whole of the production came from the Mosaboni mine in the Singhbhum District. The production of refined copper at Mosaboni was 4,443 tons, as compared with 4,069 tons in the previous year. The rolling mill produced 5,440 tons of yellow metal sheet as compared with 3,637 tons in the previous year. In the production of these sheets 3,441 tons of refined copper were consumed. The average selling prices of copper ingots and yellow metal sheet were Rs. 689 and Rs. 657 per ton, respectively.

The system of breaking ground by direct payment per foot of hole drilled continued to give excellent results. The average rate of drilling increased from 50 to 80 feet per machine shift which latter figure compares favourably with Rand practice.

As mentioned in an earlier paragraph 9,729 tons of copper matte were produced in the smelting of lead-silver ore in Burma.

Zinc Ore.

From the composite ore mined at Bawdwin mine in the Northern Shan States, Burma, 44,484 tons of zinc concentrates were produced for shipment. The production in 1931 was 51,455 tons.

Mica.

The quantity of mica consigned was 32,644 cwt., valued at Rs. 14,31,901, as compared with 38,863 cwt. in 1931. The decrease was 16 per cent. The output of dressed mica in 1932 was 36,557 cwt. as compared with 46,177 cwt. in 1931.

The quantities of mica and splittings shipped in 1931 and 1932 are as follows :—

	Cwt.	Rs.
1931	33,244	31,37,492
1932	31,518	26,55,578

There was, therefore, a reduction of 8·12 per cent. in quantity and 16·4 per cent. in the value.

The suspension of big electrification schemes has had an adverse effect on the export of splittings which is the larger branch of the trade. There is also a greatly reduced demand for splittings by manufacturers of micanite. Large stocks of mica of all qualities still appear to be held in London.

In the Nellore district only a few mines were working to any extent during the year and those produced mica of a stained or not too heavily spotted quality.

The Bihar and Orissa Mica Act has now been in operation for over a year and it has done a good deal to check thieving.

Rock-salt.

The production of rock-salt was 150,286 tons, as compared with 134,916 tons in the previous year. The scheme for placing crushed rock-salt from the Khewra mine in the Punjab on the Bengal market was well under way at the end of the year. The crushing plant had been erected and bins for the storage of crushed salt were being built. A certain amount of work in the mine at Khewra has been done by electric coal cutting machines and it is intended that these machines will be used more extensively in the future for development work.

Limestone.

The reported production of limestone was 725,378 tons, valued at Rs. 9,55,700, as compared with 862,226 tons in 1931.

Stone.

Returns were submitted by the owners of one hundred and fifty one stone mines, and the figures of production were as follows:—1,289,652 tons of igneous rock; 27,205 tons of laterite; 29,714 tons of sandstone; 25,252 tons of gravel; and 15,384 tons of *murum*. The total production was 1,387,207 tons, as compared with 1,772,079 tons in 1931.

Clays.

From the seventeen clay mines from which figures were obtained 32,693 tons of fire-clay, 10,020 tons of china clay and 29,885 tons of ordinary clay were produced.

Other Minerals.

The production of other minerals was as follows:—7,641 tons of slate, valued at Rs. 1,71,496; 13,492 tons of magnesite, valued at Rs. 64,482; 2,336 tons of gypsum, valued at Rs. 3,505; 2,093 tons of barytes, valued at Rs. 23,921; 709 tons of steatite, valued at Rs. 15,043; 371 tons of ochre, valued at Rs. 2,617; 473 tons of felspar, valued at Rs. 4 388; 537 tons of kyanite, valued at Rs. 8,055; 121 tons of apatite, valued at Rs. 1,071. Small quantities of fuller's earth, beryl and bismuth were also produced.

Section III.—Accidents.

During the year 1932 at mines regulated by the Indian Mines Act, 1923, there were 163 fatal accidents which is 26 less than in 1931 and 48 less than the average number in the preceding five years.

In addition to the fatal accidents there were 600 serious accidents involving injuries to 613 persons, as compared with 591 serious accidents involving injuries to 613 persons in the previous year. No record is maintained of minor accidents. The so-called "serious" accidents reported are

those in which an injury has been sustained which involves, or in all probability will involve, the permanent loss of or injury to the sight or hearing, or the fracture of any limb or the enforced absence of the injured person from work for a period exceeding twenty days.

Two hundred persons were killed and 649 persons were seriously injured. The latter figure includes 36 persons injured in fatal accidents. The number of persons killed is 27 less than in 1931. One-hundred eighty-two persons killed were men and 18 were women. In one case nineteen lives, in one case five lives, and in sixteen cases two lives were lost.

The proportions of accidents which occurred to men and to women, respectively, underground, in open workings, and on the surface were as follows :—

	No. of fatal accidents.	No. of men killed.	No. of women killed.	Death rate per 1000 persons employed.		No. of serious accidents.	No. of men injured.	No. of women injured.	Serious injury rate per 1000 persons employed.	
				Men.	Women.				Men.	Women.
Underground .	138	155	17	1·61	1·16	458	431	34	4·48	2·31
Open workings.	11	14	..	0·46	..	31	26	8	0·86	0·74
Surface . .	14	13	1	0·33	0·08	111	107	7	2·68	0·55

There was a considerable reduction in the death rate of women employed underground and on the surface as compared with last year, but an increase in the death rate of men employed underground. The death rate of men employed in open workings and on the surface was lower than last year. The causes of the fatal accidents have been classified as follows :—

	No. of fatal accidents.	Percentage of total number of fatal accidents.
Misadventure	110	67·48
Fault of deceased	22	13·50
Fault of fellow workmen	10	6·13
Fault of subordinate officials	14	8·59
Fault of management	5	3·07
Faulty material	2	1·23
	163	100·00

Firedamp.—There were three accidents resulting in seven deaths due to ignitions of firedamp. There were also two serious accidents causing injuries to two persons. In one accident which occurred at Methani colliery in the Raniganj coalfield five lives were lost and two persons were severely injured.

This accident is described in detail later on in this report. The other two fatal accidents occurred in open light mines.

Falls of roof and sides.—Falls of roof and sides caused 93 fatal accidents and 153 serious accidents. As compared with the figures under this head in the previous year the total number of accidents decreased from 265 to 246; the number of persons killed decreased from 126 to 105; and the number of persons seriously injured decreased from 170 to 157. There were 22 accidents involving the death of 24 persons due to falls of roof or sides in depillaring areas. In seven accidents the death of seven persons resulted from their being struck by props which had been knocked out by falls of side in depillaring areas. There were, as usual, several accidents due to persons working in places which had not been allotted to them.

In Shafts.—There were 6 fatal accidents and 12 serious accidents in shafts, as compared with 8 fatal accidents and 15 serious accidents in the previous year. In one case a miner fell out of the cage when the cage was near the bottom of the shaft, the man presumably having opened the cage gate and stepped into the shaft under a misunderstanding. In one case a miner fell into the sump of the shaft and was killed and in four cases four persons were killed by things falling in the shaft.

Suffocation by gases.—There was one accident due to suffocation by gases in which no less than 19 persons lost their lives. The accident occurred in a mica mine in Bihar and Orissa. The gases which caused the death of these persons resulted from a timber fire which occurred in a part of the workings, the gases being carried round the workings. A full description of this accident is given later on in the report.

Explosives.—There were 12 fatal accidents and 17 serious accidents caused by explosives. In the previous year the figures were 9 and 28, respectively. In one accident two persons were killed as the result of difficulty in lighting one of the fuses of a round of shots. Some of the shots exploded before they could escape. In all the other accidents one person was killed in each. One accident was due to a miner neglecting to take proper cover from the shot. In two other accidents an explosion occurred while a shot-hole was being drilled in an underground gallery, the drill having struck a small quantity of gelignite left unexploded from a previous shot. Another accident occurred through a miner returning to a gallery, in which the fuse of a shot had been ignited, in order to fetch his loin cloth. Two accidents occurred through shots blowing through into another gallery which was about to join the gallery in which the shot was being fired. One accident occurred through miscount of the number of shots, and in one accident the person killed had not been warned that a shot was about to be fired.

Haulage.—There were 28 fatal accidents and 141 serious accidents on haulage roads. Many of the accidents, both fatal and serious, could have been avoided. Five persons were killed and two were seriously injured while sleeping, sitting, or waiting on or near the haulage road. Off the haulage roads all roadways should be regarded as places where it is dangerous to loiter or work while hauling is in progress. The attention of agents and managers of all coal mines was drawn to this source of accident some time ago and it was pointed out that a simple and inexpensive precaution was to mark a white line not less

than 2 feet in width on the side and roof of the landing at a point 20 feet from the main line crossing and to instruct officials and landing attendants to warn all persons that throughout the whole of the working shift they should keep on the inner side of the white line. This constitutes a very simple and effective precaution. In the same circular it was recommended that officials should be instructed to take steps to prevent persons sleeping near tram lines.

The uncontrolled movement of tubs caused accidents which involved the lives of four persons and serious injury to two others. The practice of allowing tubs to run uncontrolled and unattended down even slight gradients is a dangerous one and unless adequate precautions to prevent accidents are taken trammers should be required to accompany and control the speed of each tub or set of tubs where the tubs have to be lowered by hand. Three persons were fatally injured and three seriously injured whilst illegally riding on tubs which were being raised or lowered. Failure to use proper sprags at points where tubs were being loaded caused two fatal accidents and one serious accident.

I would again invite the attention of agents and managers of mines to an improved type of drag designed by Mr. N. Barraclough, Inspector of Mines, and given on page 25 of the report of the Chief Inspector of Mines in India for 1931. At one colliery where it is being used the manager has stated as follows :—

" We use them on all our haulage inclines (gradient about 1 in 6) and I find they are an asset. When using the old type of drag the tubs sometimes ran as far as 100 feet before they came to rest and then they were nearly all damaged beyond repair. This new type of drag operates within 10 feet and very little damage is done to the tubs. Apart from the safety of labour the use of the new drag results in a large saving in general repairs. There is no trouble in getting the trammers to use the drag." At a few collieries where the improved drag is being used it has been observed that the points, where the two limbs of the drag make contact with the axle of the tub at the time of derailment, are not staggered as shown in the original design. When the drag operates, derailment is ensured by having the two points staggered as shown in the sketch.

Underground Machinery.—Six serious accidents were caused by underground machinery.

Sundries Underground.—Five fatal accidents and 144 serious accidents were due to miscellaneous causes underground. In one case six persons were severely burnt as the result of an ignition of petrol vapour while an electric motor was being cleaned by petrol. Two of the persons died subsequently. This accident is described later in the report.

Surface Machinery —One fatal accident and ten serious accidents were caused by surface machinery.

Boilers and Pipes Bursting.—There was one serious accident from this cause.

Surface Railways and Tramways.—Five fatal accidents and 49 serious accidents took place on surface railways and tramways.

Electricity.—It is again satisfactory to note that there was only one fatal accident and one serious accident attributable to electricity.

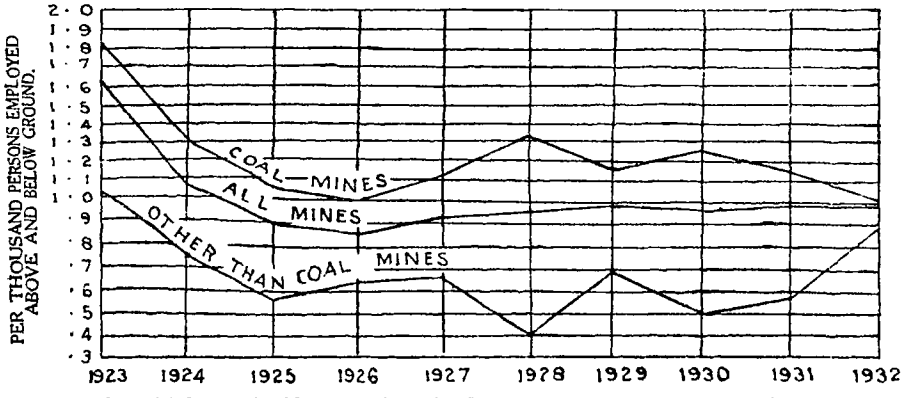
Miscellaneous in open Workings and on the Surface.—In open workings one fatal accident and 15 serious accidents were due to miscellaneous causes and 7 fatal accidents and 49 serious accidents of this kind took place on the surface.

Accidents excluded from the statistics.—Twenty-six accidents causing 27 deaths were excluded from the statistics for reasons which are given in Appendix II.

Death rates.—The death rate per thousand persons employed above and below ground was 0·98 which was the same as the rate in 1930 and in 1931. The average rate for the preceding five years was 0·97. At coal mines the rate was 1·02, as compared with 1·17 in 1931. At mines other than coal mines the rate was 0·87, as compared with 0·58 in 1931. The increase in the death rate in this class of mine was mainly due to an accident which occurred at a mica mine and caused the death of nineteen persons.

The chart below shows graphically the variations in the death rate during the decade 1923-32.

CHART SHOWING
THE DEATH RATE FROM ACCIDENTS DURING THE PERIOD 1923-1932.



The high rate in 1923 was due chiefly to an explosion in a coal mine which caused the loss of 74 lives.

The death rate per million tons raised at coal mines was 8·07 while that of the preceding five years was 9·15. The death rate on the basis of output was the lowest since 1905.

Deaths occurring in each class of mines were as follows :—

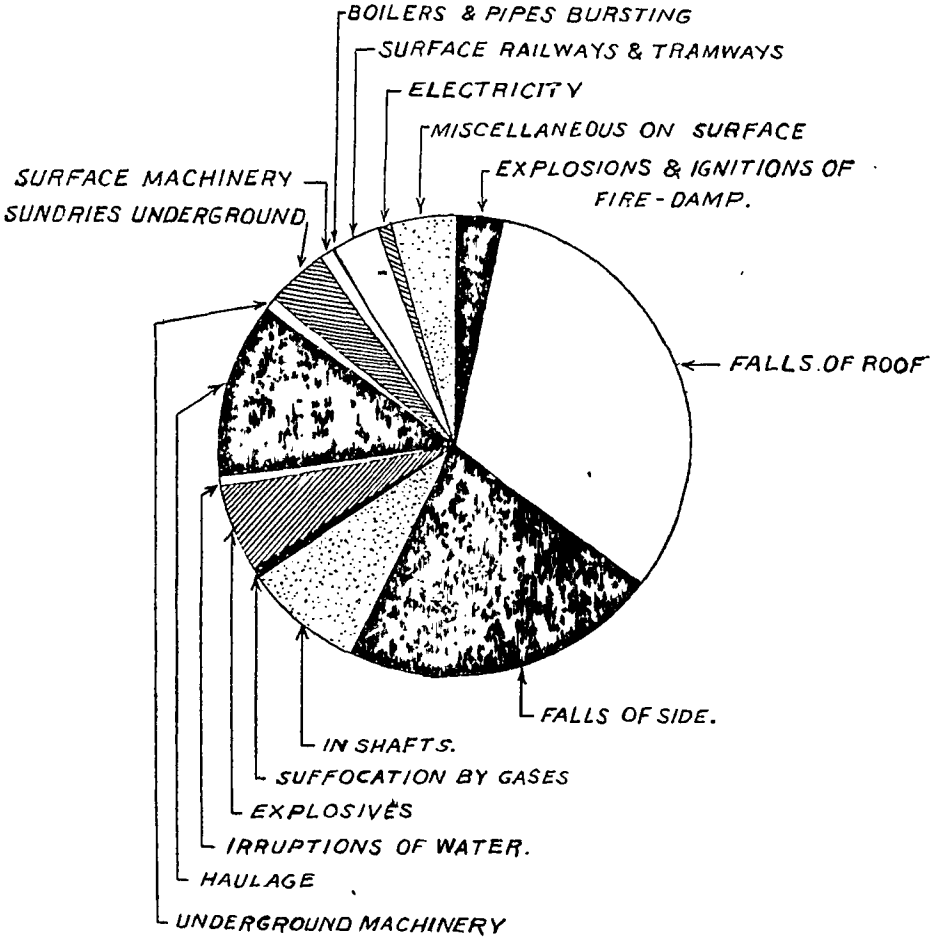
151 in coal mines, 24 in mica mines. 5 in silver-lead mines ; 4 in tin and wolfram mines ; 4 in limestone mines ; 2 in stone mines ; 4 in a copper mine ; 1 in a salt mine ; 1 in a chromite mine ; 2 in manganese mines ; 1 in an iron ore mine and one in a magnesite mine.

Seven persons lost their lives by explosions or ignitions of firedamp ; 52 by falls of roof ; 53 by falls of side ; 6 in shafts ; 19 by suffocation by gases ; 13 by explosives ; 29 by haulage ; 7 by other accidents underground and 14 on the surface.

The accompanying chart which is based on the records of fatal accidents during the last ten years, with the exception of 1923, shows the relative impor-

tance of the various causes of accidents. It will be noted that falls of roof and sides were responsible for more than half of the persons killed and that haulage was the next most important cause.

CHART SHOWING
DISTRIBUTION OF CAUSES OF PERSONS KILLED IN AND ABOUT COAL MINES IN THE YEARS 1922-1932 (EXCLUDING 1923 WHEN DUE TO AN EXPLOSION OF COAL DUST 74 LIVES WERE LOST.)



A list of the fatal accidents appears in appendix II, Table I, where each is described briefly. The details of certain accidents are reported at greater length as follows :—

EXPLOSIONS AND IGNITIONS OF FIREDAMP.

No. 1. The Aldih Coal Company, Limited's Methani coal mine.

At this mine the Dishergarh seam is worked from two shafts at a depth of 950 feet from the surface. The seam is 16 feet thick. The mine is a comparatively large one and about 1,200 persons are employed on two shifts

The seam is one which gives off inflammable gas and safety lamps are used throughout the mine.

At 5-30 A.M. on the morning of the 9th April an explosion of inflammable gas occurred as a result of which seven persons were severely injured ; five of them subsequently died. The district in which the explosion occurred is shown on Plan No. 1. Two electric coal cutting machines were being used in the district and the coal in the galleries was being blasted by Stonobel, a " permitted " explosive. The shots were fired by means of electric detonators, hand-operated electric exploders being used for the purpose. The explosion is presumed to have originated at the face of No. 3 level. The coal at the face of No. 3 level had been undercut by a coal cutting machine. The bottom part of the undercut coal was blasted on the day before the accident, and the coal cleared away during the first part of the shift in which the accident occurred. Three shots were prepared and charged in the upper part of the coal (See Plan No. 2). It does not appear to be clear when these three shot holes were charged but the centre shot was fired at 5-30 A.M. and immediately afterwards there was an ignition of gas which travelled a distance of 300 feet from the face of the gallery causing the fatal and serious injuries already mentioned.

At the time of the accident there were 79 persons in the district. An enquiry was held by Mr. J. H. Lang, Inspector of Mines, No. 2 Circle, and he was of the opinion that there could be no doubt that the explosion was caused by the firing of the central shot and that other possible sources of ignition, such as, naked lights, defective safety lamps, electricity, etc., could be ruled out. An examination was made by the Electric Inspector of Mines of the shot firing apparatus. He found the insulation of the shot firing cables defective at two points. The exploder was of the multiple shot type, that is to say, it was capable of firing more than one shot at a time. As the shot firing cable and the exploder were on the ground at some distance from the shot it is not likely that these were in an explosive atmosphere. The ends of the cable, however, at the point where they were connected to the detonator leads were probably in an inflammable atmosphere. The Inspector of Mines concluded that although there was a possibility of the firedamp having been ignited by a spark across the ends of the shot firing cable, the evidence pointed mainly to the ignition having been caused by the shot.

The explosion was a comparatively mild one. The damage done by violence was slight. The flame of the explosion appears to have travelled mainly along the roof as two persons, of whom one was slightly burned and the other uninjured, saved themselves by lying flat on the ground and allowing the flame to pass over them. The explosion appears to have been due to firedamp alone. The galleries traversed by the flame contained dry coal dust but there was no sign of coked dust on the roof or sides of the galleries. Firedamp had been reported as present in No. 3 level from time to time, the last report prior to the shift on which the accident occurred being dated the 5th April. Firedamp was also reported in No. 2 level on the 7th. The gas in these places had presumably been removed as no gas was reported on the following shifts. According to the evidence of the overman (Satchidananda Lall), on duty at the time of the accident, gas was found at the face of No. 3 level at the beginning of the shift. There was then a half inch gas cap

3½ feet from the floor. At 4 o'clock the gas had diminished, but was still present 4½ feet from the floor. He affirms that he fenced it off.

The Inspector of Mines found that about five hours after the explosion there was a considerable accumulation of firedamp in No. 3 level, and in other parts of the district. He considered the amount of air circulated in the district in which the explosion occurred to be sufficient to keep the workings free from firedamp provided that the stoppings and brattices necessary for the proper coursing of the air were kept in order.

The arrangements for firing shots were found to be unsatisfactory. The shot in No. 3 level which is supposed to have ignited the gas was fired by Jagadish Prosad Lalla who died as the result of the explosion. The overman, Satchidananda Lall, stated that he told Jagadish Prosad Lalla that there was gas in the face of No. 3 level. The deposition of Jagadish Prosad Lalla was taken after the accident and he stated that he was not aware that there was an accumulation of firedamp in the gallery. He did not make any tests for firedamp before he exploded the charge. He was not authorized to fire shots.

In 1930 a somewhat similar explosion of firedamp occurred at the Dishergarh West coal mine belonging to the Equitable Coal Company, Limited*. In accordance with the recommendation of the Court of Inquiry who reported on that accident the Agent issued instructions to the managers of all the collieries under his charge—of which the Methani colliery was one—that all shots should be fired by an overman holding a sirdar's certificate endorsed for gas testing. In order to ensure compliance with this order he gave written instructions that the handle or key of the shotfiring battery was to remain in the possession of the authorised overman when on duty.

The overman on duty at the time of the accident, Satchidananda Lal denied in evidence that he was accustomed to retain the handle himself but the overman on the day shift stated that he handed the handle to the night shift overman at the beginning of the night shift. Satchidananda Lall was not appointed as shotfirer. Indeed it appeared that the manager had neglected to make a distinct and definite written appointment of shotfirer. Jagadish Prosad Lalla had previously been a shotfirer but when a fresh authorization had been issued some time prior to the explosion he had been designated as "explosive carrier". Satchidananda Lall had been appointed as overman and not as shotfirer but it appeared to be understood that he was the only man on the shift whose duty it was to fire shots.

Accordingly it was held that Satchidananda Lall had been criminally negligent in that he had allowed Jagadish Prosad Lalla to get possession of the handle of the shotfiring battery and so enabled the latter to fire the shot which caused the accident.

Criminal proceedings were instituted against Satchidananda Lall for breach of Coal Mines Regulations 115, 143 and 146. He was convicted under Section 39 of the Act for breach of Regulation 115 and sentenced to pay a fine of Rs. 100, or in default to undergo one month's rigorous imprisonment.

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* See Annual Report for 1930.

He was also convicted under Section 40 of the Act for breaches of Regulations 143 and 146 and sentenced to six weeks rigorous imprisonment.

The defects in the administration of the colliery were taken up with the management. The following is an extract from the letter by my predecessor to the Agent :—

"In my opinion the present arrangement under which the former shotfirers carry the explosives and the exploders, charge and tamp the shot holes, lay the shotfiring cables and connect them to the charges, and do everything in the process of shotfiring except turn the handle of the exploder, is one which invites accident. The explosive-carriers are appointed and paid by the contractors, and as the latter are not concerned with safety it is by no means improbable that whenever for any reason the overman-shotfirer is unable to be present at the precise moment when shots are ready for firing, the contractor or his assistant induces the explosive-carrier to fire the shots.

For the reason given in the preceding paragraph I recommend that the whole of the process of shotfiring be performed only by persons holding sirdars' certificates endorsed for gas testing.

In the first paragraph of this letter mention is made of the possibility of a spark on the electric firing circuit having ignited the firedamp. This possibility was greatly increased by the press button on the exploder used being out of order. In this connection I shall be pleased to be informed of the arrangements made for ensuring that exploders and shotfiring cables are maintained in good condition.

I invite attention to Bye-law 16 which reads as follows :—

> 'In any underground working place or sinking shaft only those holes which are to be fired in the next round shall be charged.'

At the place where the shot which caused the accident was fired two charged shot holes were found. and it has since been admitted that owing to a misinterpretation of its meaning Bye-law 16 was being generally disregarded." * * * *.

It was also suggested to the Agent that suitable drafts of written authorizations to be made under Coal Mines Regulation 25 be sent to every manager subordinate to him and the following form of authorization was recommended :—

INDIAN MINES ACT, 1923.

As required by Regulation 25 of the Indian Coal Mines Regulations, 1926, I hereby appoint you.....as overman. under Regulation 70(2), and as shotfirer, under Regulation 108, and hand over to you copies of the Regulations and Bye-laws. Your particular attention is drawn to Regulations 70 and 97-120 and to Bye-laws 15-19 and 37-56.

.....Manager.....Colliery.

Date.....

I accept appointment as overman and shotfirer and acknowledge receipt of copies of the Regulations and Bye-laws.

.....

Dated.....

I wish to invite the attention of all managers of coal mines to the aspect of this accident bearing on the appointment of competent persons in compliance with the regulations under the Act. It is one of the primary duties of the managers to appoint in writing such competent persons as are necessary for the proper supervision of all operations in the mine. Such authorizations should be clear and unequivocal and should clearly specify the duties of the person to whom the authorization is granted. Reference should be made to the regulation under which the appointment is made and in particular the requirements of Regulation 25 of the Coal Mines Regulations should be fulfilled.

There is another aspect of the accident to which it is desirable to draw attention. Both the explosion at Dishergarh West colliery described in the Annual Report for 1930 and that at Methani colliery discussed above were attributed to the ignition of firedamp by a shot of "permitted" explosive. The use of "permitted" explosives in situations where inflammable gas is likely to be present is compulsory under the regulations and their use undoubtedly confers a higher degree of safety than can be secured by ordinary explosives. As has been shown, however, by the two accidents mentioned, the use of a "permitted" explosive does not guarantee absolute security in the presence of inflammable gas. The main, indeed the real safeguard in such circumstances, lies in the avoidance of the use of explosives in any place in which firedamp is present in the atmosphere. The regulations are explicit on this point. Regulation 115 states that "in any place in which the use of a locked safety lamp is for the time being required by or in pursuance of these regulations, or which is dry and dusty, the shotfirer shall not fire a shot or allow a shot to be fired until he has examined both the place itself, where the shot is to be fired, and all contiguous accessible places within a radius of sixty feet, and has found the place safe for firing".

If this regulation had been observed neither the explosion at Dishergarh West colliery nor that at Methani colliery need have occurred.

A defect in the regulation lies in the omission of a requirement that the shotfirer should possess a certificate of ability to test for and detect the presence of inflammable gas. This defect, I hope, will soon be rectified by a new regulation requiring all persons appointed to fire shots in a gassy mine to possess an underground sirdar's certificate endorsed for ability to test for inflammable gas.

The accident points also to the necessity for close attention to the ventilation of galleries in which inflammable gas may accumulate. Accumulations should, as far as possible, be prevented by efficient bratticing and a good circulation of air and when they do occur they should be removed as speedily as possible.

No. 3.—The Bengal Coke and Coal Products Limited's Sitanala coal mine.

This coal mine has been working since 1910 and up to the day of the accident there was no record of firedamp having been found. The accident occurred in No. 17 seam which is 14'-6" thick and dips steeply at an inclination of 1 in 1·42. The seam had been developed to a distance of 780 feet from the outcrop and along a strike line of 2,650 feet. The seam is ventilated naturally there being six openings to the surface. Naked lights were used. The accident occurred at 9 a.m. on 18th June in No. 6 West Level off No. 3 incline. The sirdar on the day shift stated that he visited No. 6 West Level shortly after 8 a.m. and inspected the place. He carried an open light and found everything normal Shortly after 9 a.m. a miner entered the level. He placed his lamp on the floor and had only been working a few minutes when an ignition of gas took place. He sustained burns over the major part of his body and subsequently died.

The mine was inspected two days after the occurrence and the inspecting officer found 3 per cent. of firedamp in the atmosphere near the roof of the place in which the accident occurred. The conclusion of the inspecting officer was that a "pocket" of gas had been encountered and that as no effort had been made to course the air into the place the gas had not been diluted and carried away. The presence of gas, however, had not been anticipated. The inspecting officer suggested that improvements should be made in the coursing of the air into the working places. After the accident the statutory inspections of the workings were made with a locked safety lamp and safety lamps were used as a precautionary measure in all galleries driven in advance of the ordinary galleries as required by Coal Mines Regulation 124.

Falls of Roof.

No. 18. The East Indian Railway's Kurhurbaree coal mine.

This accident occurred in the Kurhurbaree seam worked in Jubilee Pit No. 2 in the collieries situated at Giridih belonging to the East Indian Railway. The Kurhurbaree seam is 16 feet thick and in the process of working out the seam in the district in which the accident occurred a position has been reached where long strips of coal left to support haulage roads and now standing between large goafed areas are to be extracted. A pillar of coal was in the later stages of extraction, only two quarters 24' 10' and 26' × 21' respectively, remaining to be taken out. Work was being carried on in the space between the two quarter pillars. About 10 feet from the floor of the seam there is a stone band one foot thick. The method of extracting the pillar at the point where the accident occurred was to remove the bottom 9 feet of coal and the stone band and to carry the upper 6 feet of coal by means of cogs and props.

At the time of the accident there were seven persons working in the place. Suddenly there was a loud noise described by some witnesses as a "goom" and a large wedge shaped mass of coal, 6 feet thick 21 feet wide at one end and narrowing down to nothing along a length of 42 feet, fell from the roof. Two miners were killed instantly and four other men were

injured. The bodies of the deceased were not recovered until eleven hours after the fall. Of the four men who were injured one was injured seriously and the others slightly. The place was inspected by the under-manager about six hours before the accident and was afterwards examined by the sirdar in charge three times up to the time of the accident. The last inspection was made ten minutes before the accident occurred, and the sirdar then described the roof as being normal and sound. At one side of the block of coal which fell there was a long prominent cleat.

The inspecting officer considered that the fall of roof was due primarily to a heavy roof movement in the goaf near to where the coal was being extracted. He expressed the opinion that where depillaring operations are conducted in narrow strips of coal lying between large goaves, danger from falls of roof and sides as a result of heavy rock movements must be apprehended and that only constant vigilance on the part of the mining staff and abundant timbering would tend to keep the accident rate within reasonable proportions. The Inspector of Mines, No. 1 Circle, addressed the Colliery Superintendent and enquired if he did not consider that a change in the system of working would tend to reduce the number of accidents due to "bumps", *i.e.*, heavy movements of the roof, and the Colliery Superintendent expressed the opinion that any change in the system of working would not improve matters.

After the accident under discussion the Chief Inspector of Mines again addressed the Colliery Superintendent, drew attention to the accident and invited the Colliery Superintendent to consider whether it would be feasible to adopt a method of working by which the excavated ground was more or less completely filled by packing or stowing material. The Colliery Superintendent considered that this proposal was economically impracticable and pointed out that the conditions to which reference was made only prevailed in certain portions of the mine. He invited the Chief Inspector of Mines to discuss the matter with him and, if necessary, he was prepared to make joint inspections of the various portions of the colliery where difficult work was in progress with a view to the prevention of accidents.

Accordingly in October I made an inspection of the districts similar to that in which the accident occurred. I found defects in the method of carrying the roof coal. The roof coal is carried on cogs and props but many of the cogs were built on debris improperly arranged so that with any slight movement or increase of weight it was likely that the cogs would slip. This I considered was not good practice where roof coal has to be carried. The cogs should be built rigidly on the floor and pinned hard up against the roof. A sufficient number of props should also be set on the floor. The amount of roof coal carried at one time should be reduced to a minimum and, where slips or cleats are shown, additional props or cogs should be set so as to prevent movement at the line of weakness. It is not, as a rule, good practice to carry roof coal in this manner but the management considered that it was the best method of extracting the seam because of the insecure nature of the main roof in these districts. I drew the attention of the Colliery Superintendent to the necessity for proper and adequate support and to close supervision. The Colliery Superintendent agreed with my recommendations.

No. 17.—The Bansra Coal Company Limited's Toposi coal mine.

In this mine the seam worked is 11 feet thick and has an inclination of 1 in 12. The method of pillar extraction consists of working out the bottom 7′-6″ of coal by means of a coal cutting machine, the remaining 3′-6″ of coal being supported on props. The seam is overlain by a roof of false bedded sandstone traversed by cleats. At the place of accident extraction of the lower part of the seam in a pillar had been completed and operations were in progress for taking down the roof coal. A large mass of roof stone measuring about 34′×9′×2½′ thick fell from a cleat and a miner was killed. The inspecting officer found that three props were set at one end of the stone which fell and five at the other end but none at the centre. He was of the opinion that the roof stone had not been properly supported and considered that the timbering should have been more systematic. The matter was taken up with the manager who issued instructions at the colliery that props should be set 5 feet apart in one direction and 4 feet apart in another direction. The lesson to be learnt from this accident is that where there is any doubt as to the security of the roof systematic timbering should invariably be adopted.

IN SHAFTS (FALLING DOWN SHAFT).

No. 98.—The B., B. & C. I. and M. & S. M. Railways' Jarangdih coal mine.

This accident occurred in a shaft 930 feet deep. The cage landing is at a depth of 870 feet, leaving a sump 60 feet deep. The shaft was used for raising and lowering persons and materials only. The accompanying sketch shows the conditions at the bottom of the shaft landing at the time of the accident.

One side of the cage was permanently fenced by a timber fence and the other side was protected by chain fences. Immediately prior to the accident as the cage had reached the landing the onsetter unfastened the chain fence and then walked forward and lifted the cage gates for the men to leave the cage. At this moment a miner who was engaged in handling tubs in the shaft bottom was seen to pass through the chain fence on the west side and fall into the sump 60 feet below. There were 3 feet of water and mud in the sump at the time. He was rescued as soon as possible but was dead when his body was recovered.

This mine is very gassy and safety lamps are used throughout. The only illumination of the shaft bottom was that given by the lamps of the different persons at work. Sometime previously, owing to the gassy nature of the mine all electric lights had been removed from the bottom of the shaft. Sometime before the accident a safety lamp had been placed on the south side of the shaft to throw light on the cage during the period when mine cars containing bricks were being brought down the shaft. It appears that the man who was killed expressed his intention of going to retrieve this lamp, and it is presumed that for that reason he tried to cross the shaft. It is not, however, clear that he actually intended to cross the shaft bottom and it is just possible that he may have intended merely to stand near the shaft prior to walking through the east cage before retrieving the lamp.

In the poor light he could easily misjudge the distance between the chains and the shaft edge and so fall into the sump.

The sump of the shaft was covered by rails. These rails are normally spaced 2 feet apart across the shaft. Some days prior to the accident, however, the work of cleaning out the sump had been commenced and in order to allow a kibble to pass, the rails had been moved apart leaving a space 7′—3″×4′ in the middle of the shaft. It was apparently through this space that deceased fell. Even with the rails properly spaced it is doubtful if they would have been effective in preventing the deceased from falling into the bottom of the sump since the gap between the rails was 7′—3″×2′.

There was no bye-pass round the shaft and it was held that owing to the presence of bad ground the construction of a bye-pass would present great difficulties. Besides the manager did not consider that a bye-pass was necessary since operations were conducted on one side of the shaft only.

It was afterwards pointed out to the management that the chain fence did not constitute a proper protection since there was a considerable gap between the fence and the edge of the cage with the result that when one fence was open there was a clear path to each cage compartment of the shaft. Moreover the sump should have been properly covered in. These matters were afterwards taken up with the management who agreed to the suggestions made. The management also proposed after the accident to re-introduce electric light at the bottom of the shaft, the fittings to be flame-proof and to comply with the regulations for use in gassy mines.

Suffocation by gases.

No. 103.—Messrs. F. F. Chrestien and Company Limited's Lady Rangi mica mine.

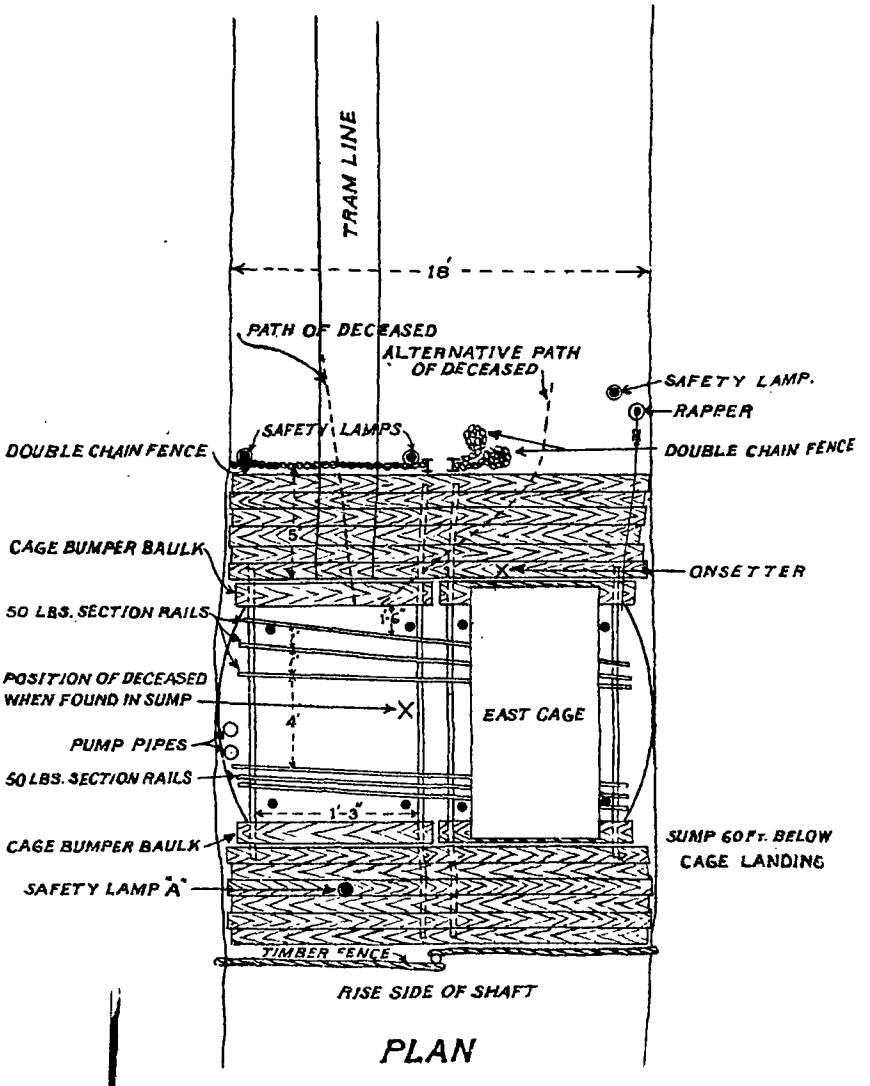
Mr. N. Barraclough, Inspector of Mines, made a full enquiry into this accident, in which nineteen persons lost their lives. His report was published by the Government of Bihar and Orissa and copies of it sent to owners and managers of metalliferous mines in the province. The following account is extracted from the report :—

"The mine is situated in the district of Hazaribagh, about 9¾ miles north-east of Domchanch village at latitude 24°-34′ north and longitude 85° 45′ east. * * * * * * * * *. A pegmatite vein, 4 to 6 feet wide, dipping almost vertically and passing through a hill about 250 feet high from east to west was developed by a number of levels or drives and winzes to a depth of 315 feet measured from the summit of the hill. The accompanying plan serves to illustrate the general lay-out of the mine (Plan No. 3). An adit or level tunnel, shown on the plan as No. 2 adit, driven from a suitable point near the foot of the hill, served as the main travelling and haulage road. Miners almost invariably used this adit, because it was level and the most comfortable and convenient way of reaching the underground working places. From the point where the adit met the pegmatite vein there was a level drive, No. 3 level, proceeding in the vein to the western extremity of the workings. The adit and No. 3 level were roughly 6½ feet high and 5½ feet wide, and along them was laid a

B. B. & C. I. AND M & S. M. R'ys,

JARANGDIH MINE.

SCALE 1/8 IN = 1 FT.



PLAN

2 feet gauge track used for transporting materials and spoil. The second outlet from the mine was the New shaft, 115 feet deep, situated at the western end of No. 3 level. This shaft was provided with ladders and platforms. each ladder being about 15 feet long. A compressed air main, connecting an Ingersol Rand air compressor, driven by a petrol engine and situated near the top of the shaft, to pipes laid along No. 3 level, was also fitted in the New shaft. The Old shaft, which was about 30 feet deep and 35 feet to the east of the New shaft, was not used as a travelling way and was not provided with ladders, but from the bottom of the shaft to No. 3 level there was a proper travelling way *viâ* the intermediate level and No. 1 winze. At the bottom of the Old shaft there was a substantial barricade to prevent entrance into the mine and the theft of mica. The sides of the Old shaft down to a depth of 25 feet were sloping and untimbered and only the bottom 5 feet was supported by posts and lagging. The intermediate level was timbered with posts and cross-bars with covering wood or lagging placed above the cross-bars and behind the posts. It will be observed from the plan that the major portion of the vein above No. 2 level had been completely extracted or stoped. As there was no demand for mica, stoping had been discontinued for several weeks prior to the accident and the miners had been concentrated in the lower workings where development of the vein was being continued. Ladders were provided in No. 2 west and No. 4 winze between the third and fourth levels. in No 3 winze between the fourth and fifth levels and in No. 4 winze between the fifth and sixth levels".

" At about 9 A.M. on the day of accident the mine in-charge, Hiralal Bose, admitted forty-two miners, and work proceeded normally until 2 P.M. After inspecting the lower workings, Hiralal Bose ascended to No. 3 level and at the steam winch coolies informed him that smoke was coming into the mine. He went westward along No. 3 level and found smoke coming down No. 1 winze. He went to the top of No. 2 winze and shouted down the winze to a timberman and coolies working at the bottom to go out of the mine. Then he returned along No. 3 level and shouted down the various winzes to tell the workers to leave the mine. After doing this he went out of the mine by the adit followed by workers from Nos. 3 and 4 levels. On reaching the surface he went over the hill to the top of the Old shaft and found the timber at the bottom of the shaft burning. He sent a man to inform the mine manager, Nani Lal Mukherjee, who was at the adjacent Surangi mine. Returning to the adit Hiralal Bose found thick smoke coming out of the mine. He took a hurricane lamp and proceeded along the adit for a distance of about 100 feet. At this point his knees gave way and he fell down but managed to crawl out of the adit. On reaching fresh air he became unconscious and took no part in subsequent operations. The durwan, Jharee Mia, whose brother, an underground worker, had not come out of the mine, also attempted to enter by the adit. He was also overcome by the fumes and had to be rescued by other workmen."

" The mine manager, N. L. Mukherjee, on receiving information about the fire at 2 30 P.M. immediately proceeded to the top of the Old shaft where he found a gang of coolies throwing water on to the fire. Water for this purpose had to be carried from No. 2 adit entrance over the hill. He

instructed R. N. Sirkar, an in-charge of Surangi mine who had gone with him, to go down to the adit entrance. Shortly afterwards, R. N. Sirkar returned and reported that it was impossible owing to thick smoke to enter the adit. N. L. Mukherjee obtained and fitted two ladders in the Old shaft so that the fire-fighters could descend. He descended the New shaft as far as the intermediate level and went towards the fire. Observing that the fire was advancing towards the New shaft he made arrangements for water to be carried down the shaft and the fire quenched from that side. He had sent R. N. Sirkar and B. K. Mazumdar, another in-charge of Surangi mine, down the New shaft to No. 3 level. On descending to No. 3 level he found B. K. Mazumdar and others had rescued Basar Mia who had been found near the top of No. 5 winze. It was found impossible to proceed further along No. 3 level. At this time, about 4 P. M., Mr. Savary, the Divisional Superiutendent, arrived on the scene and assumed command of operations. He had inspected both this mine and Surangi mine that day and had left for his bungalow at Charki, $2\frac{1}{2}$ miles distant from the mine, at 1 P.M. On hearing of the disaster at 3-30 P.M. he immediately proceeded on horseback to the mine. He attempted to go along No. 3 level but the candle which he carried was on the point of being extinguished after he had proceeded 25 feet from the foot of No. 1 winze, and he found breathing in the smoke very difficult. Then he tried to descend No. 2 winze west and his candle was extinguished when he reached the bottom of the third ladder. On returning to No. 3 level he summoned a mechanic to open a "T" socket in the compressed air main, his intention being to try and blow the smoke up No. 1 winze and prevent it entering the mine. At 4-30 P.M. the air compressor was started. It had not been used for twelve days and a supply of petrol had to be carried from Charki to the mine."

'Mr. Savary went up the New shaft to the intermediate level and found a lot of fire on the west side of the Old shaft but the fire on the east side was much stronger. He instructed the fire-fighters to throw earth on the fire at the west side so that all the available water could be used on the east side. On returning to No. 3 level he found less smoke coming down No. 1 winze, and B. K. Mazumdar with three men had been able to go along the level as far as the steam winch and recover two bodies. The smoke increased again and prevented the recovery of two more bodies which B. K. Mazumdar had observed near the winch."

"At 7-45 P.M. the fire was under control, and at 9 P.M. it had been quenched sufficiently to permit of N. L. Mukherjee making an inspection of the whole of No. 3 level and No. 2 adit. Seven bodies were found at the various points on No. 3 level as indicated on the plan. He had also seen one body on the ladder in No. 4 winze. He returned and tried to descend No. 4 winze but could not proceed lower than the first platform (about 15 feet) because his light was extinguished. Arrangements were made to remove the noxious gases from the workings below No. 3 level and at 5 30 A.M. on the 13th April three bodies were found on the ladder platform in No. 4 winze between the third and fourth levels and three more bodies just below the winze on No. 4 level. The remaining two bodies were not discovered until 3 P.M. on the 13th April when a complete inspection of the lower workings became possible."

"Of the forty-two men at work underground during the shift, four were on the surface and 38 underground at the time of the occurrence. Five men were at work in No. 4 winze below No. 6 level, six were in No. 5 winze below No. 6 level, two were in No. 6 drive, three were filling buckets on No. 6 level at the bottom of the hauling shaft, five were at the bottom of No. 2 west winze below No. 4 level, two were emptying buckets at the top of the hauling shaft, three were tramming on No. 3 level, three were operating the hand pump at No. 2 east winze on No. 4 level and one was bailing water at the bottom of No. 2 winze; two were at the bottom of the New shaft making a gate, two were setting timber on No. 4 level at No. 2 west winze, one was driving the steam winch, Rajan Mia, sirdar, was on the sixth level and Hiralal Bose was on No. 3 level near the steam winch." * * * * * *

Of the 19 persons who lost their lives, 15 were working on or below No. 6 level, 3 were in No. 2 west winze below No. 4 level, and one was the durwan who attempted to enter by the adit. Most of those who lost their lives were employed in the deepest part of the mine and having numerous ladders to climb to reach No. 3 level their journey to the surface was long and tedious.

"The ventilation of the mine was natural, being due to the difference in temperature of the air leaving the mine to that entering it. * * * * *. When I inspected the mine the workings were adequately ventilated, and there was a brisk current of air entering by the New and Old shafts. The direction of the air currents in the mine is indicated by arrows on the plan." * * * * *

"The fire extended from the bottom of the Old shaft along the intermediate level for a distance of 20 feet on the east side and 25 feet on the west side. The timber burned consisted of ten sets, *i.e.*, 20 props and cross-bars 4 to 5 inches in diameter, the lagging above the cross-bars and behind the props, and the posts and lagging supporting the bottom 5 feet of the Old shaft."

The inspecting officer estimated that the burning of this quantity of timber would produce over 40,000 cubic feet of a mixture of carbon dioxide and carbon monoxide.

The doctor employed by the company assumed by a superficial examination of the bodies that cause of death was suffocation by carbon dioxide. He did not, however, examine the blood of any of them in order to determine definitely the cause of death. It was Mr. Barraclough's view, however, that death was mainly due to carbon-monoxide poisoning. It is well-known that a very small percentage of carbon-monoxide in the atmosphere will, if breathed, cause death in a short time. No doubt carbon-dioxide was present in the air also and that together with a deficiency of oxygen would promote deeper and more frequent respiration, so accelerating the rate of absorption of carbon monoxide by the persons breathing the fumes. Mr. Barraclough also draws attention to the effect of throwing small quantities of water on a red-hot fire as was done in the instance under description. The water is converted into steam which reacts with the glowing carbon and forms carbon-monoxide with liberation of hydrogen.

"In 1897 an accident of a similar nature occurred at Snaefell lead mine in the Isle of Man. In his report on this accident Sir Clement Le Neve Foster stated:—'It is rather startling to find how small a quantity of timber need be burnt to pollute to a dangerous extent the passages of a mine'. A sample of the air collected in this mine after the accident contained percentages as follows:—Oxygen 15·48; carbon-dioxide 4·22: carbon-monoxide 1·07; hydrogen 0·48 and nitrogen 78·75."

"When I made an inspection of the surface I found the fine ash of burnt leaves, blackened pieces of mica, burnt grass and burnt twigs of small trees in the vicinity of the Old shaft which was evidence of a recent jungle fire. There was a dry hot breeze blowing and I was informed that when the fire started, the breeze was very strong. As far as I could ascertain at my enquiry no person was employed on the surface near the shaft. The nearest dwelling, which appeared to have been unoccupied for some time, was more than 200 yards distant, and there was no path or track near the shaft that was likely to be used by any person from the mine or from a village. The shaft was near the summit of the hill, and it is most unlikely that any person would walk over the hill during the heat of the day. In the absence of other evidence I have assumed that the fire was caused by an ember from a jungle fire being blown into the shaft, and I believe the aforementioned facts support my assumption."

"The Old shaft was not fitted with ladders and not used as a travelling road. It is probable that some dried leaves had been blown into the shaft and accumulated at the bottom. The ember would ignite the dry leaves which, in turn, would ignite the timber and wooden barricade at the bottom of the shaft. Although the timber would be very dry I do not think an ember alone could possibly have started the fire."

Mr. Barraclough criticised the conduct of the mine in-charge, Hiralal Bose, in that instead of simply warning the workers by shouting he should have himself descended to the lower levels to warn the men and to assist them to escape. He also criticised the manager, N. L. Mukherjee, who should have tried to close the bottom of No. 1 winze in order to reverse the air in the Old shaft. If these measures had been taken Mr. Barraclough thought that many of the lives which were lost might have been saved. In extenuation however, he pointed out that neither of the officials appeared to realise the grave nature of the occurrence which was entirely outside their previous experience.

To prevent such accidents Mr. Barraclough suggested that owners of underground mica mines should be requested to take steps during the months of January to July as follows:

(1) To remove all vegetation for a radius of about 50 yards round any mine entrance.

(2) To have any accumulation of leaves removed from the vicinity of any shaft or from the sides and bottom of any shaft.

(3) To appoint a watchman for shafts which are not normally in use and under observation during the hot weather when jungle fires are rife.

An additional precaution that might be suggested is to build a stone wall 6 feet high at the surface round all unused shafts.

BY EXPLOSIVES.

No. 104.—The Lodna Colliery Company (1920) Limited's Sripur coal mine.

Three shots were being fired in the face of a gallery. The shotfirers gave the usual warning and they together with several other miners retired to a place 168 feet from the face of the gallery. Most of the persons sheltered behind a set of coal tubs which was standing on a tramline but one of them sat in the gallery in a straight line with the shots. A piece of coal about 3 inches cube in size was projected from one of the shots and struck the miner sitting in the gallery on the head. He sustained concussion of the brain and died shortly afterwards. The accident points to the necessity for all persons in the vicinity of shots about to be fired taking refuge in such a position that projected pieces of coal and stone from the shots cannot reach them. A piece of stone and coal may be projected a long distance in a straight gallery and it is always advisable for persons to take refuge at a sufficient distance from the shot and behind an intervening face of coal or other secure refuge.

No. 114.—Messrs. Chattu Ram Darson Ram's Faguni mica mine.

This accident occurred during the sinking of a shaft. Twelve shot holes had been prepared and were duly charged with dynamite. The shot holes were examined by the shift-in-charge and found in order. The shift-in-charge went towards the lower level and warned the miners there that blasting was about to commence. The shots were lighted by two shotfirers, each lighting six shots. They then retired to a safe place and the shots were counted as they went off. The two shotfirers were satisfied that all the twelve shots had exploded. It is stated that they waited about 10 to 15 minutes after the last shot and then returned to the shaft. As they entered the shaft a shot exploded and both men were seriously injured; one died a few hours later. The inspecting officer was of the opinion that the two shotfirers did not wait 10 to 15 minutes as stated before returning to the shaft and that they miscounted the shots. When several shots are being fired together it is sometimes difficult to be certain if all the shots have exploded since two or more shots may go off simultaneously. Regulation 80 of the Indian Metalliferous Mines Regulations, 1926, from which I make the following quotation provides for cases in which there is a doubt as to all the shots having exploded:

"Unless it is certain that all the shots have exploded, no person shall re-enter such working place until thirty minutes after blasting, unless the shot has been fired by electrical means when this interval may be reduced to not less than ten minutes after the source of the electricity has been disconnected from the cable and the place becomes clear of fumes".

No. 107. - The Burma Corporation Limited's Bawdwin lead-silver mine.

Towards the end of a shift four miners had drilled and charged eight shot holes in the face of a drive. When the shots were ready for firing one of the miners retired to a safe place. The leading miner commenced to light the fuses assisted by another who was cutting the fuses preparatory to lighting.

The third miner was holding the light a short distance away. It appears that before all the shots were lighted one of them exploded and injured all three men who were present. Two of the miners afterwards succumbed to their injuries.

When the place was examined after the accident it was found that five shots had been fired and that three had not been fired. It was discovered, however, that the fuse of one of the shot holes had been cut in several places indicating that there had been trouble in lighting it. All the fuses were 4 feet in length. The place was wet and it is just possible that the fuse with which difficulty had been experienced had got slightly damp owing to its position next the floor.

It is advisable, where possible, that the number of shots to be fired at one time should be limited and instructions should be given that where there is any difficulty or delay involved in lighting a number of shots at one time the shotfirer and his companions should retire at once.

No. 112.—Messrs. Kanga and Company's Alkusa Coal mine.

At this colliery it was the practice to authorise a large number of so-called "C. P." miners to fire shots. A miner had drilled and charged a shot hole in the roof coal of a gallery, 16 feet high, with about one pound of gunpowder, and just as he was about to light the shot a sirdar arrived on the scene. The sirdar warned the persons working in the vicinity and retired from the place. On a tramline some distance away he warned five other persons. No attempt was, however, made to guard the galleries leading to the point where the shot was being fired and the man who lighted the shot simply shouted "khubardar" when he ignited the fuse. A miner who apparently was unaware that a shot was being fired was returning to his working place when he was struck by a piece of coal projected by the shot which exploded when he was 15 feet away. Regulation 109 requires that an authorised person when about to fire a shot shall give sufficient warning to all persons likely to be endangered by the same.

The Inspector of mines, No. 1 Circle, who enquired into the accident expressed the opinion that the practice of authorising numerous "C. P." miners to fire shots was open to grave objection and made the following recommendations with which the manager agreed: —

(1) To withdraw all authorisations to fire shots issued to miners.

(2) To appoint sirdars to fire shots.

(3) To permit the miners to carry their own gunpowder but no fuse, the sirdars who should fire the shots to be in possession of the fuse.

(4) The sirdars authorised to fire shots to supervise the charging of shotholes blasting and dressing of the place after blasting.

He also made recommendations with regard to the warning to be given to persons in the vicinity and the guarding of all approaches to the place in which shots are being fired.

HAULAGE.

No. 121.—The Assam Railways and Trading Company, Limited's Burra Golai Coal mine.

This accident occurred at a level tram line which extends from the place of loading to the top landing of a jig. Two trammers brought out a loaded tub to within about 17 feet of the top of the jig when the tub jammed owing to partial blocking of the rails by dirt which slipped off the side. One of the trammers removed the dirt and went to pull the tub from the front side, the other trammer pushing it from behind. The trammer in front stepped on the dip side of the road in order to allow the tub pass. They both left their lamps hanging on the side of the roadway some distance behind. In the insufficient light the trammer stepped accidentally to that side in which there was insufficient space between the side of the gallery and the tub with the result that he was crushed against the side and died almost instantly.

The accident points to the desirability, particularly on roads in which the tubs are trammed by hand, of there being sufficient clearance between the side of the tub and the side of the gallery to allow the men to stand in safety.

SUNDRIES UNDERGROUND.

No. 144.—The Borrea Coal Company, Limited's Bhagaband Coal mine.

In an underground haulage house 20 feet wide and 10 feet high, a 75 H. P., 3-phase slip ring motor was being cleaned with petrol. The end plates had been moved outwards so that the petrol could be poured on to the rotor and stator windings. One man was on the top of the motor pouring the petrol, two men were on either side cleaning the windings with jute swabs and the Assistant Engineer was supervising the work. The haulage room was normally lighted by electricity from a 110 volt main and to facilitate the work in hand a lamp with an unprotected bulb was directly connected by means of flexible insulated wires to the lighting circuit. The petrol and the petrol vapour became ignited and the six men were severely burnt. Two of them afterwards died.

It was found afterwards by the inspecting officer that the bulb of the inspection lamp was broken and the holder was lying on the floor, the wires being still connected to the lighting circuit. In the room at a distance of about 15 feet from the motor there was an acetylene hand lamp which was still lighted. There was a good current of air passing through the haulage room. The inspecting officer came to the conclusion that the petrol had been ignited by the breaking of the electric bulb of the inspection lamp.

It appears that it is customary to clean electric motors underground in this manner. It is, however, dangerous to use lamps connected to the lighting circuit. There is also the question of the use of an acetylene hand lamp. This is also a dangerous practice under the circumstances. When the work of cleaning a motor is being carried out in the way described no open light at all should be anywhere near the place, and it is preferable to use an electric torch for the purpose of illumination.

Section IV.—Prosecutions, and Amendments to the Act, Regulations and Rules, and Orders made thereunder.

Prosecutions.

During the year judgments in prosecutions were given as follows:—

The agent and manager of Messrs. M. M. C. and Company's Khas Jinagora colliery were prosecuted for allowing the total number of women working underground to be greater than 23 per cent. of the total number of persons, both women and men, employed underground and for not maintaining a correct register of work-persons on Schedule "A" of Rule 9. The register-keeper was also prosecuted for not making correct entries in the register of work-persons. The agent was fined Rs. 30, and the manager and register-keeper Rs. 20 each.

The owner of Messrs. West Angarpathra Coal Company's West Angarpathra colliery was prosecuted for omitting to fence, by structures of a permanent character, three discontinued inclines. He was fined Rs. 20.

The agent of Mrs. L. M. Martin's North Jinagora colliery and North Sendra colliery was prosecuted for working the mines without qualified managers. He was fined Rs. 3 for offences in both cases.

The owner of North Colukdih (Chandkuiya) colliery was prosecuted for working the mine without a qualified manager and for the employment of persons in the mine without an inspection, as required by Regulation 70 (2), being made by a competent person. He was fined Rs. 50.

The agent and manager of Rai Sahib Sundarlal & Sons' Dhao colliery were prosecuted for employing underground a larger percentage of women than is permitted under Regulation 4 of the Department of Industries and Labour, Notification No. M-1055, dated the 7th March 1929. The manager was fined Rs. 50. The agent was acquitted.

The owner, manager and attendance clerk of Babu Srinivas Goenka's Upper Kenda colliery were prosecuted; the owner and manager for employing persons for more than 12 hours, for permitting persons to be employed during hours other than those specified for them and for failing to keep the attendance register correctly and the attendance clerk for failing to keep the correct record of persons descending and ascending and for falsifying the register. The owner and manager were fined Rs. 50 each; the attendance clerk Rs. 15.

The managing director and agent and the attendance clerk of Messrs. New Satpukuria Colliery Company, Limited's New Satpukuria colliery were prosecuted; the former for permitting persons to be employed underground for more than the specified hours and the latter for failing to make the necessary entries in the register of work persons. The managing director was fined Rs. 50 and the attendance clerk Rs. 30.

The owner and manager of Babu Kanailal Kanjilal's Jamunakanali colliery were prosecuted for driving galleries within a distance of 25 feet of the boundary claimed by the owner of the adjacent mine. The former was fined Rs. 200, and the latter Rs. 100.

The owner, manager and register-keeper of Babu Chhotalal Patel's Gararia colliery were prosecuted; the owner and manager for failing to see that a correct record of the number of persons going underground daily was being maintained and that the attendance register was being kept in the required form; the register-keeper for failing to keep a correct record of the number of persons going underground daily. The owner was fined Rs. 30, the manager Rs. 20 and the register-keeper Rs. 15.

The owner and manager of Babu Sasadhar Choubay's Chulapora colliery were prosecuted for failing to slope, step or secure the sides of the open workings in such a manner as to prevent danger from falls of materials. The owner was fined Rs. 20 and the manager Rs. 10.

An overman of Messrs. Aldih Coal Company Limited's Methani colliery was prosecuted for permitting shots to be fired under his direction in a place where safety lamps are required to be used when all contiguous places within a radius of 60 feet had not been found safe for firing, for failing to comply with the manager's orders to keep the handle of the shot firing apparatus in his possession and for allowing the explosives carrier to retain the handle of the shot firing apparatus. He was fined Rs. 100 and in addition sentenced to six weeks' rigorous imprisonment.

The manager and attendance clerk of the above colliery were prosecuted for having falsified the records required to be kept under Rules 9 and 9-A., made by the Government of Bengal under Section 30 of the Indian Mines Act, 1923, and for employing underground a larger percentage of women than is permitted. The manager was fined Rs. 150 and the attendance clerk Rs. 100.

The owners (two) and temporary manager of Messrs. Shewkaran & Sons' Belbaid colliery were prosecuted; the owner for failing to appoint a competent manager and the manager for having acted as manager of the mine when he did not possess the prescribed qualifications, in violation of the regulations. The owners were fined Rs. 500 each and the manager Rs. 250. The convicted persons preferred an appeal which had not been heard up to the date of writing this report.

The owner and attendance clerk of Babu Biraj Krishna Mukherjee's New Ghusick colliery were prosecuted; the former for failing to keep the safety lamps in ordinary use numbered and a record of the persons to whom the lamps were issued in order to identify the user of any particular lamp for permitting safety lamps which were not in safe working order to be used and for not keeping in stock sufficient materials and appliances for the proper carrying out of all necessary operations in a manner consonant with the provisions of the Act, regulations and bye laws; the latter for failing to maintain the register of safety lamps and for issuing safety lamps which were not in safe working order. The owner was fined Rs. 50, and the attendance clerk Rs. 75.

The managing director and manager of Messrs. B. K. Mukherjee and Company, Limited's Pathargoria colliery were prosecuted for not keeping an abandoned incline properly fenced. The former was fined Rs. 5 and the latter Rs. 20.

The owner, agent, manager and contractors (two) of Messrs. B. Mukherjee and Company's Badjna colliery were prosecuted for employing persons underground during night shift for more than twelve hours and for permitting persons to be employed during hours other than those specified for them. The manager was fined Rs. 25 and the other accused Rs. 10 each.

The owner of South Laikdih Coal Concern's Jograd colliery were prosecuted for failing to submit within the prescribed date a correct plan of the discontinued workings of the Jograd colliery. He was fined Rs. 20.

For similar offences the owners (five) of Messrs. N. P. Brothers' Chatai colliery, the owner and agent of Messrs. C. Deddes and Company, Limited's West Kumardih colliery, the owners (two) of Messrs. Krishna Mining Company's Pollimitta mica mine and the owners (two) of Mohana mica mine were prosecuted. The owners of Chatai colliery were fined Rs. 2 each; the case against the owners and agent of the Kumardih colliery was dropped as the accused could not be traced; the owners of Pollimitta mica mine were fined Rs. 15 each and one of the owners of Mohana mica mine was fined Rs. 20. The case against the other owner was withdrawn as he had left for Europe.

The owner and manager of Babu J. N. Mukherjee's Sahebganj Block No. 2 stone mine were prosecuted for failing to report the occurrence of an accident and for failing to keep the sides of open workings sloped, stepped or secured in such a manner as to prevent danger from falls of material. They were also prosecuted for failing to remove the overburden sufficiently far from the sides or otherwise to make it secure in order to prevent danger to persons employed in the mine and for failing to make and keep secure the sides of working places. In the first case they were fined Rs. 100 each and in the second Rs. 75 each.

Six prosecutions were instituted for failure to submit annual returns within the prescribed date. In two cases fines aggregating Rs. 40 were imposed. The other cases were dropped on various grounds.

Information was received of certain prosecutions instituted by mine officials against subordinate staff as follows:—

The manager of the Amalgamated Coalfields Limited's Bhamori colliery prosecuted a shotfirer for firing shots without taking the necessary precaution of withdrawing persons likely to be endangered and fencing the place. He was sentenced to six months' rigorous imprisonment and a fine of Rs. 50.

A fireman of the Guzdar Kajora Colliery Company, Limited's Guzdar Kajora colliery was prosecuted for driving an engine whilst the authorised engine driver was away. He was sentenced to six months' rigorous imprisonment.

A miner of the Bengal Coal Company, Limited's Seetalpur colliery was prosecuted for leaving his working place and entering a fenced area to rob coal from the corner of a pillar. He was sentenced to simple imprisonment for one month.

The manager of New Beerbhoom Coal Company, Limited's New Kenda colliery prosecuted two shotfirers for entering and working in a fenced area without authority. The case against one was withdrawn and the other was fined Rs. 30

Two cases were instituted by the Manager of the Standard Coal Company, Limited's Standard colliery against eleven miners for leaving the working places allotted to them and for breaking down fences and cutting and robbing pillar coal from fenced areas. In one case a miner was fined Rs. 20 and in the other case ten miners were fined Rs. 5 each.

The Manager of Ghusick Coal Company, Limited's Ghusick colliery prosecuted an overman for absenting himself from duty without authority after having placed labourers to work in a pit where there was an accumulation of gas. He was fined Rs. 15.

The Manager of the Modhujore Coal Co., Limited's Modhujore colliery prosecuted a register-keeper for failing to maintain the register correctly. The case was dropped.

The Manager of West Ghusick Coal Concern's West Ghusick colliery prosecuted a lamp cabin attendant for issuing safety lamps which were not in safe working order. He was fined Rs. 20.

Amendments to the Indian Mines Act and to the Regulations, rules and Bye-Laws made under the Act.

During the year there were no additions or amendments to the Act, regulations and rules.

By the end of the year bye-laws under Section 32 of the Act had been established at five hundred and thirty-seven coal mines and at nine mines other than coal mines.

SECTION V.—GENERAL REMARKS.

Underground Fires and Collapses.

The problems involved in the incidence of under-ground fires in the coalfields of Bengal and Bihar and Orissa are becoming increasingly difficult and complex. Every year adds to the number of mines or parts of mines in which fires exist. A notable addition to the number is the fire which broke out in Seth Khora Ramji's Khas Jharia colliery in the year under review.

In this colliery No. 10 seam and No. 11-12 combined seam were worked. Both seams outcrop on the eastern side of the East Indian Railway near Jharia station but the underground workings of the mine are on the western side of the railway. The coal under the land acquired for the railway is covered by a declaration under the Land Acquisition (Mines) Act and for the most part the seams remain untouched under that land. The workings of No. 11-12 seam are close to the surface and No. 10 seam lies at a depth of 139 feet below No. 11-12 seam. No. 11-12 combined seam is 48 feet thick, and No. 10 seam is 46 feet thick. No. 10 seam was worked in one section consisting of the top 20 feet of the seam, and No. 11-12 seam was worked in two sections, and in some places three sections, one above the other. The working of the mines was commenced about thirty-six years ago, and at that time there were no buildings on the surface. The position of the mine is close to the town of Jharia, however, and in time the town was extended

over part of the surface of the mine so that in 1930 there were many important buildings within the boundaries of the mine. In that year owing to the crushing of an area of the pillars in No. 10 seam an extensive collapse of the surface took place, involving the destruction of many buildings and the death of one person.* In the collapse No. 11-12 seam was involved along with No. 10 seam and subsequently in July 1931, an officer of the Department of Mines detected evidence of spontaneous combustion in the workings of No. 11-12 seam. At the suggestion of the Chief Inspector of Mines the area in which fire was suspected was sealed off by underground stoppings.

During this period work was going on in the stable portion of the workings of No. 10 seam, but towards the end of 1931 the conditions had become such as to necessitate the temporary abandonment of the entire mine and the sealing of all openings to the surface so as to exclude access of air to the fire.

Nothing further of consequence occurred until November 21st of the year under review when there was evidence of a further collapse of the surface. Collapses at different points took place a few days later.

Arrangements were immediately made under the guidance of the Inspector of Mines, No. 1 Circle, for the filling in of the new areas of collapse so as to prevent an increase in the activity of the fire in No. 11-12 seam. The colliery was, however, in liquidation and very little could be done. As there appeared to be a danger to the railway, the Colliery Superintendent, Giridih, took a hand in the work. During the next few weeks over 10,000 tons of incombustible material were filled into the surface holes caused by the collapses. The work was carried out at considerable risk and could hardly have been attempted but for the intimate knowledge of the underground conditions possessed by Mr. Kirby, Inspector of Mines, No. 1 Circle. Both he and Mr. Stanton who was in charge of the work on behalf of the Colliery Superintendent, East Indian Railway, Giridih, are to be complimented on the caution and expedition with which such filling as could be done was carried out. Mr. H. S. Allen, Special Officer of the East Indian Railway collieries, and Mr. N. Barraclough, Inspector of Mines, also rendered good service in this work.

Unfortunately their efforts were of little avail in arresting the progress of the fire because of the further very extensive collapses that took place, and the work of filling had, for the time being, to be suspended. The existence of this fire in close proximity to a large town gave rise to considerable anxiety on the part of the Local Government, this department and the inhabitants of the town. On January 1st 1933, the Local Government issued a communiqué in which an outline was given of the circumstances relating to the occurrence and particulars of the measures that were being taken to safeguard the public. The measures that require to be taken have been defined by me and good progress is being made in their adoption.

I have given prominence to the above occurrence in order to give an indication of the difficulties that often arise in the prevention of and in dealing with underground fires. No. 11-12 seam had not been thought to be

* See Annual Report for the year 1930.

particularly liable to spontaneous combustion but the instance described together with other recent occurrences in the same seam show that it must under certain conditions be considered to be a seam which is definitely liable to spontaneous combustion. Indeed it can hardly ever be assumed that because a seam has not previously gone on fire it is entirely free from such risk. The circumstances which are likely to give rise to spontaneous combustion in Indian coal seams are far from being clearly definable but it seems indubitable that two of the main contributory causes lie in the comminution of the coal resulting from the crushing of inadequate pillars and the conditions which exist in the mine consequent on the premature collapse of the workings.

The isolation and control of an underground fire is often a matter of great difficulty. If the workings are at considerable depth and there are no collapses of the surface the problem is much easier of solution than if the seam is close to the surface and there are numerous collapses. In the latter case it is invariably difficult and frequently impracticable to exclude access of air and the fire may soon get out of control. The conditions at the mine described above are of that nature.

The subsidence Committee of the Mining and Geological Institute of India are at present considering, amongst other matters, the question of underground fires and their prevention and it is to be hoped that something useful will emerge from their deliberations.

Lighting in the underground parts of Mines.

The lighting of the underground parts of mines is a matter of considerable importance. Good lighting not only facilitates work but has an important bearing on safety. The subject of underground lighting is one which has been much in the minds of mining engineers in Europe and America during the last few years. Improved lighting is perhaps of more importance in coal mines than in metalliferous mines since in the former the black surfaces of the coal absorb a great deal of the light and in many of them safety lamps have to be used. The ordinary flame safety lamp gives a very poor light. Electric safety lamps are perhaps a little better in this respect but even they leave much to be desired. Professor Sharpley, Indian School of Mines, recently conducted a series of tests on electric safety lamps in use at an Indian colliery and obtained the following results :—With the filament of the lamp broadside on the candle-power at the commencement of the test was 1·14 and after 9 hours 0·84. With the filament edge on the results were 0·62 at the commencement and 0·47 after 9 hours. The lighting-power of the lamp, therefore, fell 25 per cent. in a period of 9 hours. Recently in some types of portable electric safety lamps the lighting-power has been increased to four candle-power and even more. It will be evident that the better illumination given by such lamps greatly reduces the risk of accidents.

In certain parts of mines lighting from electric mains is practicable and at shaft bottoms or insets and at important haulage junctions, where good lighting is particularly necessary, advantage should be taken of this system. It is also a great improvement where this system is used to arrange

the electric bulbs in concave recesses cut in the roof or sides in order to avoid glare.

Since the reflective capacity of a white surface is about 75 per cent. as compared with 5 per cent. for that of a coal surface, whitewashing of the sides and roof of the roadway improves underground lighting in a very marked degree. Whitewashing costs very little and it should invariably be done at shaft bottoms, insets and at other busy centres in the mine.

In some instances flood lighting has been adopted in areas where pillars are being extracted. As an instance of this I might cite the system of lighting adopted at Sripur colliery in the Raniganj coalfield. The seam worked there is 15 feet thick and the entire working place in a depillaring area is illuminated by a single electric lamp of 300 candle-power, which, by the aid of a cone-shaped (sheet steel) reflector coated with white aluminium paint, throws a spreading beam of light over the face of the pillar. The props set for the support of the roof are whitewashed. By such a system of lighting the miner can work with more freedom and in greater safety.

Good lighting will pay for itself in increased output and in lower compensation costs and I would strongly recommend increased attention in our Indian coal mines to this important subject.

Coal-dust Committee.

The Third and Final Report of the Committee appointed by the Government of India to investigate the dangers arising from coal-dust in Indian mines was published early in the year. The following gentlemen formed the Committee :—Mr. R. R. Simpson, C.I.E., (Chairman), Messrs. J. B. Wardlaw, J. E. Phelps, H. K. Nag, P. B. Basu, A. Farquhar, J. Thomas, J. H. Lang (members). and Dr. D. Penman (Secretary). Messrs. J. G. Foster, H. C. Read, G. Naysmith and P. Bates were members during the early work of the Committee. Terms of reference :—To enquire into the danger of explosions of coal-dust in Indian coal mines ; to make experiments on different kinds of coal-dust with a view to determine their liability to explode or otherwise ; and to report what means, if any, are necessary or desirable to provide against the risk of coal-dust explosions in Indian coal mines.

The Committee in their final report discussed the findings of the First and Second Reports and the additional investigations since these were published and made the following recommendations :—

1. That Regulation 107 be amended to read :—

" The amount of every charge of explosive shall be proportioned to the work to be done, and the charge shall be placed in a properly drilled and placed shot-hole and shall have sufficient stemming. A sufficient supply of clay or other suitable stemming material shall be provided at places convenient to the shotfirers "

2. That Regulation 124 be amended as follows :—

" In every mine in which inflammable gas has been found during the previous twelve months safety lamps shall be used as a precautionary measure in all galleries driven to a distance greater than the length of

two pillars ahead of the last connecting gallery and in all narrow advance galleries, and no narrow advance gallery shall be driven more than 10 feet ahead of the widened gallery ; in every such gallery the ventilating current shall be conducted as near to the working face as is practicable ".

3. That two additional regulations be made applicable to all mines as follows :—

" As far as practicable main haulage roads shall be kept free from accumulations of fine coal-dust ; and

All coal tubs shall be so constructed and maintained as to prevent, as far as practicable, coal-dust escaping through the sides, ends or floor of the tubs ".

4. That additional regulations respecting the use of " permitted " explosives be made as follows :—

Regulation 116-A.—" In any place where the use of ' permitted ' explosives is enjoined by the regulations all shots in a round of shots shall be fired simultaneously ".

Regulation 116-B.—" In any place where the use of ' permitted ' explosives is enjoined by the regulations the aggregate charge in any number of shots fired simultaneously in coal shall not exceed the permissible maximum charge for the kind of ' permitted ' explosive used ".

Regulation 116-C.—" In any place where the use of ' permitted, explosives is enjoined by the regulations no shot shall be fired in coal which has not been undercut, overcut or sidecut, and the length of the shot-hole shall be at least six inches less than the length of the cut ".

5. That shotfirers in gassy mines be required to hold a certificate of ability to test for inflammable gas.

6. That to certain coal mines a new regulation, as follows, be applied :—

" All airways, haulage and travelling roads and working places or parts of same which contain dry coal-dust shall be treated in one of the following ways :—

(*a*) they shall be treated with fine incombustible dust in such manner, and at such intervals, as will ensure that the dust on the floor, roof and sides throughout shall always consist of a mixture containing not more than 50 per cent. of combustible matter ;

(*b*) they shall be treated with water in such manner, and at such intervals as will ensure that dust on the floor, roof and sides throughout shall be in such a wet condition that it cannot be raised in a cloud ; or

(*c*) they shall be treated in such manner as the Chief Inspector of Mines may approve.

Note.—The incombustible dust used for the purposes of this regulation shall be prepared from shale or other material containing no injurious free silica."

7. That the Chief Inspector of Mines be empowered to apply the regulation detailed in the preceding paragraph to any mine in which in his opinion

the risk of an explosion of coal-dust is such as to require the taking of precautions additional to those enjoined in respect of all coal mines.

The appreciation of the Government of India of the services rendered by the members of the Committee was conveyed to the members.

Health and Sanitation.

The Asansol Mines Board of Health held eleven ordinary and seven special meetings during the year. Dr. L. Sen was Chief Sanitary Officer throughout the year. The general health of the population in the settlement was satisfactory, the death rate being 18·31 per thousand calculated on a population of 382 680 against 20·52 in 1931. There were 184 cases of cholera —mostly of a sporadic nature—with 65 deaths during 1932 as against 620 cases and 309 deaths in the previous year. The number of anti-cholera inoculalations performed during the year was 48,862, as against 43,316 in 1931. In addition, the Board's staff carried out various routine measures of disinfection in places where cholera was reported. There were 254 attacks with 36 deaths from small-pox during the year as against 94 cases with 8 deaths during the previous year. The provisions of the small-pox regulations had to be enforced in order to ensure proper isolation and segregation as well as quarantine in respect of colliery labour and other trades. The total number of vaccinations performed was 77,181 of which 18,094 were primary and 59,087 were re-vaccinations as against 14,975 and 48,410, respectively; making a total of 63,385 in the preceding year. Health and baby week celebrations were organised in six different parts of the mining settlement under the joint auspices of the Mines Board of Health and Asansol Health and Baby Welfare Society. A leprosy officer was appointed by the Board during the year who carried out an initial survey of leprosy in different parts of the mining settlement. The Board's staff to deal with maternity and infant welfare consisted of six midwives, who in addition to free maternity service, paid antenatal and postnatal visits within the area of work and carried out village propaganda by simple health talks. One maternity and infant welfare centre was opened towards the end of the year with a trained Health Visitor in charge, this being the first in a series of four sanctioned by the Board of Health. The malaria department was reorganised and two highly endemic areas in the mining settlement were taken up for intensive anti-malaria work.

During the year the Jharia Mines Board of Health held twelve ordinary, seven special meetings and three joint meetings with the Jharia Water Board. Major C. S. Ryles, Medical Officer, of Health held charge throughout the year. The estimated population of the settlement was 527,988 persons. The birth rate was 32·68 and the death rate 15·68 as compared with 30·97 and 16·07 in the previous year. There were 130 cases of suspected cholera and 33 deaths, as compared with 618 cases and 253 deaths in the previous year. On the collieries the number of deaths from cholera was 11, as compared with 30 in the previous year. There were 772 cases of suspected small pox with 20 deaths, as compared with 405 cases with 37 deaths in the previous year. In the Board's laboratory 433 samples of food were analysed and 139 found to be adulterated. Prosecutions were ordered in nearly all cases of adulteration. In respect of housing, there was some improvement,

but owing to the depressed state of the coal trade the building programme has been temporarily suspended. Very little new construction has been entered upon but the condition of existing accommodation has been maintained. The Board's maternity and child welfare scheme passed through a difficult period during the year but nevertheless was extended towards Sijua and continues to do good work. During the year, the Board embarked upon anti-leprosy work. Five clinics are held weekly at Jharia, Dhanbad and Katras and are well attended.

Statistics of rainfall in the Eastern Coalfields have been recorded as follows :—

	Rainfall in inches.	
	1932.	1931.
Jharia Coalfield—		
Jealgora	45·02	44·72
Topchanchi . . .	52·67	56·28
Raniganj Coalfield—		
Asansol	41·26	57·34
Giridih Coalfield—		
Giridih	58·60	52·17

Ambulance Work.

Classes in First-Aid to the injured were held at thirteen centres in the Jharia coalfield. The number of students attending was 265 and 200 certificates were awarded. In the Raniganj coalfield 270 students attended at twelve centres and 193 obtained First-Aid certificates. These classes are organised by Inspectors of Mines, Nos. 1 and 2 Circles.

Instruction in First-Aid was also given in mining centres of importance in other parts of India.

Mining Boards in Bengal, Bihar and Orissa and the Central Provinces.

The Bengal Mining Board held three meetings during the year. Among the subjects discussed at the meetings and by correspondence were :—(*a*) proposed amendment of the Indian Coal Mines Regulations, 1926; (*b*) draft regulations for oil mines; (*c*) representation of labour in the provincial legislatures under the reformed constitution; (*d*) proposed restriction on the employment of women in quarries and open workings, (*e*) proposed prohibition of the employment of women underground in mines; (*f*) variations in tubs used in coal mines; and (*g*) proposed amendment of the Indian Mines Act, 1923. The non-official members of the Board were Messrs. P. S. Keelan, C.I.E., A. L. Ojha and Rai Sahib Upendra Nath Mandal.

The Bihar and Orissa Coal Mining Board did not meet during the year. Among the subjects dealt with by correspondence were :— (*a*) draft amendment of the Indian Coal Mines Regulations, 1926; (*b*) draft regulations for oil mines; (*c*) proposed restriction on the employment of women in quarries

and open workings; (*d*) variations in tubs used in coal mines; (*e*) proposed prohibition of the employment of women underground; and (*f*) proposed amendment of the Indian Mines Act, 1923. The non-official members of the Board were Messers. J. B. Argyle, A. L. Ojha and J. Mackie.

The non-official members of the Mining Board for mines other than coal mines in Bihar and Orissa were Messrs. G. A. Young and G. G. Dobbs.

The Central Provinces Mining Board held no meetings during the year; the subjects dealt with by correspondence were:—(*a*) draft amendments of the Indian Coal Mines Regulations, 1926; (*b*) draft regulations to govern mining for oil; and (*c*) variations in tubs used in coal mines. The non-official members of the Board were Mr. R. S. Davies, Mr. L. H. Bartlett, Rai Bahadur Mathura Prasad and Rai Sahib Radeshiam Wahi.

Board of Examiners.

Four meetings of the Board of Examiners were held during the year. The non-official members of the Board were Messrs. J. Mackie, N. N. Sarkar and J. B. Wardlaw. The local examiners appointed were Messrs. J. G. Cunningham and L. Millar for coal mine managers' first class certificates; Messrs. D. L. Edwards and J. McCrae for coal mine managers' second class certificates and Mr. A. Mack for the examination for coal mine surveyors' certificates. Mr. N. Barraclough, Inspector of Mines, acted as secretary for all the examinations.

Three first class certificates of competency to manage a coal mine were granted in lieu of British certificates of the same class. At the examination for coal mine managers' certificates held at Dhanbad in February 65 candidates sat for first class certificates and 88 for second class certificates. Two certificates of the first class and twelve of the second class were granted. At the examination for coal mine surveyors' certificates of competency held at Dhanbad in November there were 45 candidates of whom four were successful.

Two hundred and forty-seven persons were examined for coal mine sirdars' certificates of competency and 199 certificates were granted. Out of 284 holders of sirdars' certificates examined in gas testing 172 were successful and their certificates were duly endorsed to that effect. 843 holders of sirdars' certificates appeared for re-examination in eyesight and hearing; 799 were successful and their certificates were duly endorsed. Under Coal Mines Regulation 49 the certificates of three sirdars were suspended for periods varying from four months to one year. During the year 12 duplicate sirdars' certificates and 69 duplicate discs were issued.

The approval of the Board was accorded to the recognition, for the purposes of Coal Mines Regulation 38, of the Government Engineering School, Nagpur, and the Bihar College of Engineering; the former in respect of the Overseer's certificate and the latter in respect of the Diploma of Subordinate Civil Engineer, as exempting from the practical experience of surveying other than the practical experience of surveying the underground workings of a mine on condition that students who obtain certificates have their certificates endorsed by the Principal to the effect that such students have had at least

three months practical experience of surveying in or about a mine during the long vacations of the school.

Mining Education.

At the Indian School of Mines, Dhanbad, the number of students on the roll at the commencement of the session 1931-32 was 54 of whom 12 were in the first year, 14 in the second year, 10 in the third year and 18 in the fourth year. The results of the Diploma and Certificate examinations were as follows :—

Diploma or certificate.	No. of candidates.	No. of successful candidates.
Diploma of Associateship in Geology .	5	5 (3 in class I and 2 in class II).
Diploma of Associateship in Mining Engineering	15	15 (8 in class I, 5 in class II, and 2 passed on re-examination).
Certificate in Geology	1	1
Certificate in Coal Mining . . .	10	10
Certificate in Metal Mining . . .	1	1

The mine surveying camp was pitched at Pootkee colliery during the month of November and 32 students of the second, third and fourth years and four special surveying students were in attendance. Visits and tours of inspections were paid to the mica mines of Kodarma, to the limestone quarries of Katni and the manganese mines of the Central Provinces. In addition many visits were paid to local collieries and places of geological interest in the neighbourhood. Twelve graduates of the school appeared at the examination for second class coal mine managers' certificates held by the Board of Examiners under the Indian Mines Act and eight of them were successful. The first four in order of merit in the examination were graduates of the school. Professor Forrester conducted a course of special lectures at the School on Fuel Technology. Over fifty managers and colliery engineers attended the lectures.

In the Department of Mining and Metallurgy at the Benares Hindu University there were 73 students on the roll at the beginning of session 1932-33. Of these, 27 students were in the first year, 19 in the second year, 3 in the third year mining, 8 in the third year metallurgy, 7 in the fourth year mining and 9 in the fourth year metallurgy. One student passed the final examination for the degree of B.Sc. in Mining and two the corresponding examination in metallurgy. Up to date the total number of mining graduates is 13. During the year visits were paid to coal mines, copper mines, limestone and steatite quarries and to iron, steel and copper works, refractory material works, etc. Geological and mine survey camps were held in the Jharia coalfield.

The Mining Education Advisory Board continued to control the three-year courses of evening instruction for mining students instituted by the Governments of Bengal and Bihar and Orissa. The lecture centres are at Raniganj and Sitarampur in the Raniganj coalfield, and at Jharia and Sijua in the Jharia coalfield. During the session 1931-32 the total number of students enrolled was 91, of whom 28 attended the classes of the third stage. Of these 28 students, 24 appeared at the final examination and 12 were

successful. In Bengal, four students from the Bengal Survey School joined for special training in mine surveying during the latter part of the session and completed their course in July 1931. Of these 4 students, three appeared at the final examination after the completion of their training, and all were successful. Courses of ten lectures were delivered in Hindi to overmen and sirdars at seven centres in the Jharia coalfield. Similar lectures in Bengali were delivered at twelve centres in the Raniganj coalfield. At the Jharia and Sitarampur lecture halls special demonstrations in gas testing were given by the mining lecturers. From August to November special classes in mine surveying preparatory for the examination for the mine surveyors' certificates of competency were held in both coalfields.

Mining and Geological Institute of India.

The total membership, including subscribers, of the Mining and Geological Institute of India at the end of the financial year of the institute, *i.e.*, on the 31st October 1932, was 320. In addition to the annual meeting, five ordinary general meetings were held for the reading and discussion of papers, whilst one meeting took the form of a lantern lecture at which Mr. W. D. West gave a lecture on "Earthquakes." Excursions were made to the Bengal Chemical and Pharmaceutical Works at Panihati, near Calcutta, and to the Equitable Coal Company, Limited's Dishergarh Colliery in the Raniganj coalfield.

Three parts of the *Transactions* were published. The Government of India prize for the best paper published during the year and the Institute gold medal were awarded to Mr. P. Evans for his paper "Explanatory Notes to Accompany a Table showing the Tertiary Succession in Assam;" the silver medal was awarded to Mr. R. R. Simpson for his paper entitled "The Social Conditions of Miners in India;" and the bronze medal was awarded to Mr. D. P. Chandoke for his paper on "The Mining and Refining of White Clays from Kasumpur near Delhi." The Pickering medal presented by the Institute for the best student in mining at the Indian School of Mines during 1930-31 session was awarded to Mr. O. L. Dadheech, and the Hayden medal for the best student in geology was awarded to Mr. B. C. Roy. Mr. J. Mackie continued on the Governing Body of the Indian School of Mines. Professor C. Forrester was appointed to serve on the Council of the Institute of Fuel, London.

The Subsidence Committee collected a large amount of useful data on the sizes of pillars and galleries in various seams and at various depths; the percentage of coal extracted in the first working; the percentage of coal removed in areas which have been goafed and other factors bearing on subsidence. The data obtained show that:—

(*a*) pillars are considerably stronger if the coal in the galleries is not worked to the full height of the seam in the first instance;

(*b*) pillars do not, as a rule, weather if they are strong enough to bear the weight of the superincumbent strata and shedding of the pillars and subsequent crushing is almost entirely due to the pillars being too weak;

(*c*) the line of the main cleavage is an important factor in assisting the breaking of the roof during goafing.

The National Association of Colliery Managers, Indian Branch; the Indian Mine Managers Association; the Indian Colliery Labour Union; the Tata Collieries' Labour Association, Jamadoba, and the Railways and Collieries Advisory Board.

The number of members of the National Association of Colliery Managers, Indian Branch, at the beginning of the year was 99. Some of the subjects dealt with by the Council during the year were:—(1) the recommendations of the Royal Commission on Labour; (2) proposed alterations in the Workmen's Compensation Act; (3) the elimination of female labour in underground workings; (4) the condition of the roads in the Jharia coalfield; and (5) the prevalence of leprosy in the coalfields. Mr. J. T. Caldwell represented the Association on the Jharia Mines Board of Health; Messrs. Geo. Caldwell and W. Macdonald on the Asansol Mines Board of Health; Mr. A. Farquhar on the Coal Dust Committee; and Mr. G. G. Carapiet on the Railways and Collieries Advisory Board.

The membership of the Indian Mine Managers Association increased from 211 to 222. Among the subjects dealt with by the Council were:—(1) proposed alterations in the Workmen's Compensation Act; (2) amendment of the Mines Act; (3) exclusion of women from underground workings; (4) recommendation of the Royal Commission on Labour regarding working hours of labourers; (5) best method of taking census of maximum number of labourers working at the mine. Mr. J. K. Dholakia represented the Association on the Jharia Mines Board of Health and Mr. M. M. Mukherjee acted as chairman of the local Railways and Collieries Advisory Board.

The Indian Colliery Labour Union was formed in August and registered under the Indian Trade Unions Act, 1926. The Union has its headquarters at Jharia and is stated to have a membership of 4,357. The constitution of the Union has been drawn up so that only workmen as defined by the Indian Mines Act are eligible for membership. Provision is made, however, for a number of persons on the Council up to twenty per cent. who are genuinely interested in the work of the Union. The aim and object of the Union is to establish good relationships between employers and employed and to assist in improvements in respect of labour.

The Tata Collieries' Labour Association, Jamadoba, functions separately in connection with the workmen employed at the collieries owned by the Tata Iron and Steel Company, Limited, in the Jharia coalfield.

The Railways and Collieries Advisory Board consists of various officials of the East Indian Railway and the Bengal Nagpur Railway and representatives from the National Association of Colliery Managers (Indian Branch) and the Indian Mine Managers Association. The Board meets as occasion demands and deals with questions relating to the supply and loading of wagons at collieries and other relevant matters.

Visit of the Hon'ble Member for the Department of Industries and Labour in the Jharia Coalfield.

The Hon'ble Sir Frank Noyce, Member for the Department of Industries and Labour, visited Dhanbad on July 16th and 17th. He paid a visit to several mines in the Jharia coalfield and to the Indian School of Mines.

Official Duties, 1932.

Mr. R. R. Simpson was Chief Inspector up to the 1st September. He was on leave, preparatory to retirement, from the 2nd September to 1st October, and was succeeded by Dr. D. Penman from the 2nd September. As a temporary measure, Dr. Penman continued to hold charge of the post of Principal of the Indian School of Mines.

Mr. Simpson served in the Department and as Chief Inspector for a longer period than any of his predecessors in office. Under his able direction the work of the Department reached a high state of efficiency. His extensive knowledge of mining in India in all its branches was used unsparingly in the interests of the mining industry. As became his position in charge of the work of the department he was keenly interested in all phases of mining activity which had any bearing on the safety of the mines, and on the amelioration of the conditions under which the miner has to work. He earned an enviable reputation for courtesy, integrity and fair dealing. He was greatly liked by the officers who worked under him. He has left behind him a record of service which is second to none in the history of mining in India.

Mr. J. H. Lang held charge of No. 2 Circle throughout the year.

Mr. W. Kirby held charge of No. 1 Circle from 1st January to 17th March and again from 15th October to the end of the year. He was on leave from 18th March to 2nd October. He was permitted to affix the Puja holidays from 3rd to 14th October.

Mr. N. Barraclough was Inspector without circle from 1st January to 17th March and again from 15th October to the end of the year. He held charge of No. 1 Circle from 18th March to 14th October.

Mr. H. M. Mitra was Electric Inspector throughout the year.

Mr. G. S. Cameron, Junior Inspector, was on leave from 10th June to 5th November.

Mr. N. G. Chatterjee, Mr. J. F. Waters, Mr. H. K. Chatterjee and Mr. A. Young, Junior Inspectors, were on duty throughout the year.

The number of coal mines worked during the year was 515 which is 25 less than in the previous year. The number of metalliferous (including stone, etc.) mines at work was 766, as compared with 877 in the previous year.

During the year 813 mines were inspected, many of them were inspected several times; 2,486 separate inspections were made. The cause and circumstances of nearly all the fatal accidents and serious accidents of importance and all complaints of breaches of regulations and rules were investigated. Many inspections were made at the invitation of mine owners, superin-

tendents or managers desirous of obtaining advice on safety matters. In the major coalfields a large proportion of the time of the Inspectors is occupied in investigating cases of actual or threatened damage to dwelling houses and roads by reason of the underground workings of coal mines, and in dealing with underground fires.

Orders were issued as follows :—

Section, Regulation or Rule.	Number of orders.
Under Section 19 (2)	1
Under Coal Mines Regulation 23	5
Under Rule 14-A. of the rules made by the Governments of Bengal and Bihar and Orissa	9

Exemptions, partial or complete, and permissions were granted as follows :—

Regulation.	Number of cases.
Under Coal Mines Regulation 53	4
Under Coal Mines Regulation 76	3
Under Coal Mines Regulation 88	2
Under Coal Mines Regulation 106	3
Under Coal Mines Regulation 116	3
Under Coal Mines Regulation 123	3

Information was received of five underground fires, three subsidences caused by collapses of underground workings, and five ignitions of inflammable gas.

The number of original cases under the Land Acquisition (Mines) Act, 1885, at the end of 1932 stood at 661, twenty-eight of which were cases dealt with during the year. There were twenty applications for modifications of restrictions and two complaints of violations of restrictions, all of which were dealt with. The Act applies to Bengal and Bihar and Orissa only. In other provinces where Government owns the minerals, Local Governments were advised as to the restrictions necessary in cases where mine-owners sought permission to work minerals beneath railways, villages, etc.

I have the honour to be,

SIR,

Your most obedient servant.

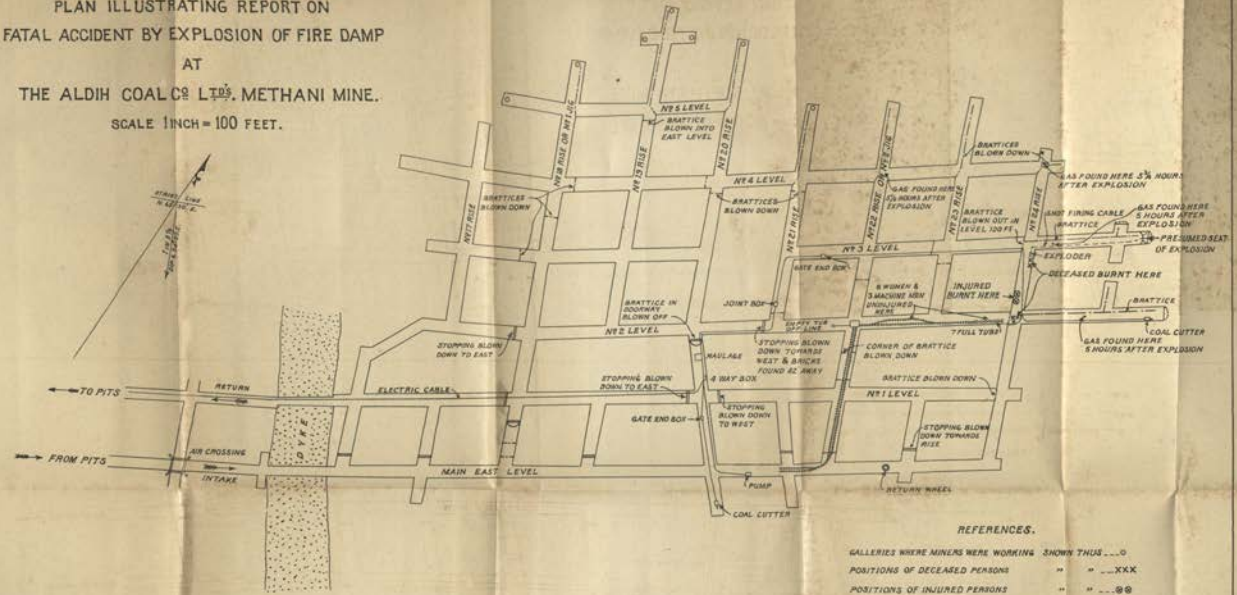
D. PENMAN,
Chief Inspector of Mines in India.

MGIPC—S4—VIII-5-12—22-9-33—1,090.

PLAN Nº 1.

PLAN ILLUSTRATING REPORT ON FATAL ACCIDENT BY EXPLOSION OF FIRE DAMP AT THE ALDIH COAL Cº LTDº. METHANI MINE.

SCALE 1 INCH = 100 FEET.



REFERENCES.

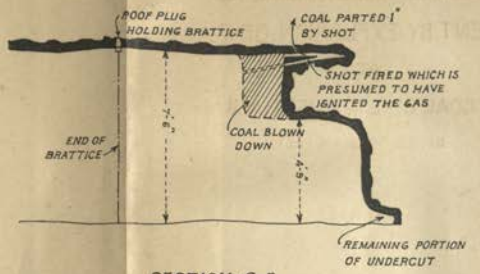
GALLERIES WHERE MINERS WERE WORKING SHOWN THUS ___○

POSITIONS OF DECEASED PERSONS " " ___XXX

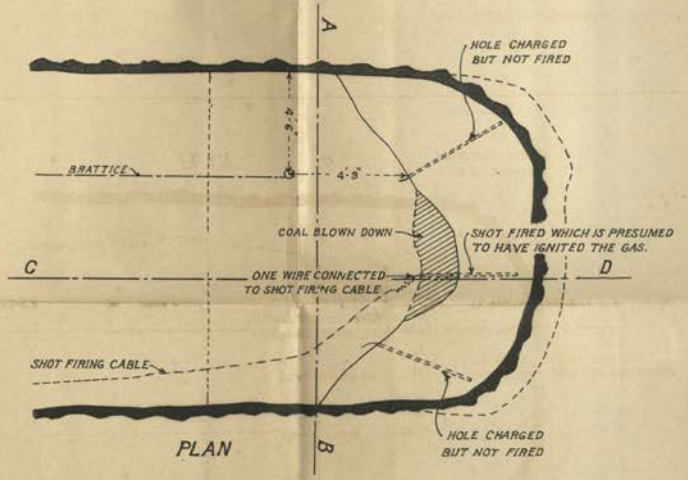
POSITIONS OF INJURED PERSONS " " ___⊗⊗

PLAN AND SECTIONS ILLUSTRATING REPORT ON FATAL ACCIDENT BY EXPLOSION OF FIRE DAMP AT THE ALDIH COAL Cº LTD'S METHANI MINE.

SCALE 1 INCH = 4 FEET.


ROOF PLUG HOLDING BRATTICE
COAL PARTED BY SHOT
SHOT FIRED WHICH IS PRESUMED TO HAVE IGNITED THE GAS
COAL BLOWN DOWN
END OF BRATTICE
REMAINING PORTION OF UNDERCUT

SECTION C.D.

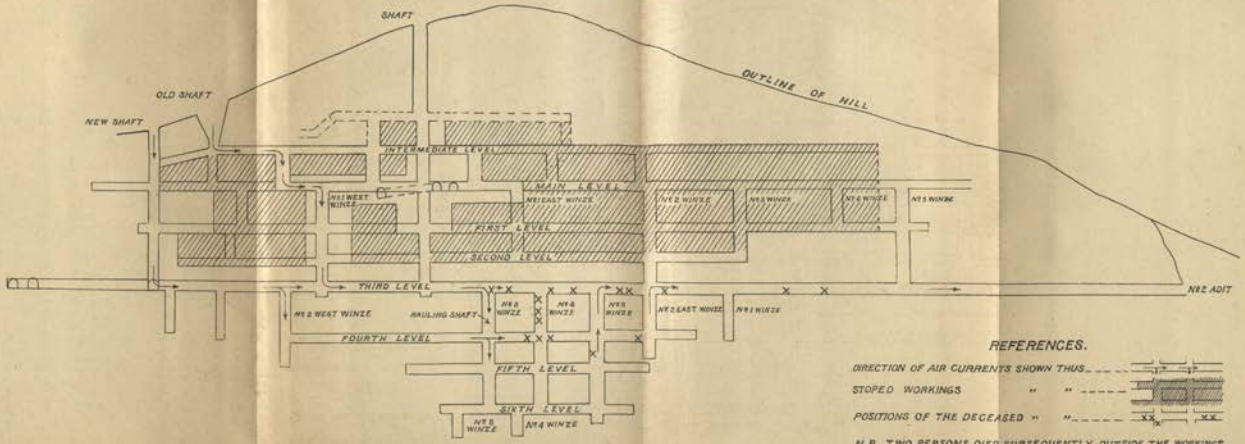


PLAN

SECTION A.B.

SECTION ILLUSTRATING REPORT ON FATAL ACCIDENT BY SUFFOCATION BY GASES AT F. F. CHRESTIAN & Co. Ltd's LADY RANGI MICA MINE.

SCALE 1 INCH = 60 FEET.



SECTION OF WORKINGS.

REFERENCES.

DIRECTION OF AIR CURRENTS SHOWN THUS

STOPED WORKINGS " "

POSITIONS OF THE DECEASED " "

N.B. TWO PERSONS DIED SUBSEQUENTLY OUTSIDE THE WORKINGS.

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of Underground. Males. Overmen and Sirdars.	Coal-cutters.	Loaders.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.	Total Males and Females.
		Tons.								CO
Assam .	Lakhimpur, Makum coalfield	170,299	107	223	260	256	527	1,372	...	1,372
	Naga Hills, Nazira ,,	88,403	13	31	38	36	141	259	...	259
	Sibsagar coalfield . .	100	1	3	2	1	...	7	...	7
	Total .	208,802	121	250	300	293	668	1,638	...	1,638
Baluchistan	Quetta-Pishin, Sor Range coalfield.	8,660	10	20	53	1	3	87	...	87
	Sil, Khost coalfield . .	5,297	7	39	37	2	...	85	..	85
	Total	13,957	17	59	90	3	3	172	...	172
Bengal .	Bankura }	10,793	10	45	30	7	11	103	18	121
	Birbhum } Raniganj coalfield	1,033	2	5	3	...	...	10	1	11
	Burdwan }	5,770,777	987	12,782	4,659	3,115	4,764	26,247	5,041	31,248
	Total	5,782,603	999	13,032	4,692	3,122	4,775	26,350	5,060	31,360
Bihar and Orissa.	Manbhum— Raniganj coalfield (part of)	563,026	91	1,684	386	270	710	3,147	646	3,793
	Jharia ,,	8,494,115	1,040	17,498	7,537	4,177	5,601	35,853	6,789	42,642
	Hazaribagh— Jharia coalfield (part of)	57,168	8	131	50	19	21	230	18	277
	Bokaro ,,	1,348,073	71	1,542	530	142	301	2,985	283	3,268
	Giridih ,,	584,248	130	3,387	710	244	591	4,168	779	5,747
	Karanpura ,,	447,838	24	608	58	58	61	809	170	979
	Ranchi— Karanpura coalfield (part of)	1,733	1	9	..	1	1	12	2	14
	Sambalpur— Hingir Rampur coalfield	19,498	2	38	20	9	6	84	14	98
	Carried over .	11,466,169	1,873	25,007	9,309	4,026	7,982	48,087	8,781	56,868

DIX I.

AND MINERALS.

No. I.

year 1932 at mines under the Indian Mines Act.

persons employed daily in and about the mines.

Open workings.									Surface.					
Males.								Total Underground and Open workings.	Males.					
Overmen and Sirdars.	Coal-cutters.	Loaders.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.	Total Males and Females.		Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.	Females.	Total Males and Females.	Grand Total.
AL.															
...	...	...	...	...	...	...	...	1,872	19	98	235	352	98	450	1,822
...	...	..	...	...	...	...	...	259	14	33	110	157	7	164	423
1	1	2	2	1	7	...	7	14	1	3	12	16	...	16	30
1	1	2	2	1	7	...	7	1,645	34	134	357	525	105	630	2,275
...	...	...	...	...	..	...	...	87	2	3	14	19	...	19	106
...	...	...	...	...	...	...	...	85	...	2	...	2	1	3	88
...	...	...	...	...	...	...	...	172	2	5	14	21	1	22	194
...	...	...	...	...	...	...	...	121	15	15	6	36	19	55	176
...	...	...	...	...	...	...	...	11	1	1	1	3	1	4	15
11	136	13	43	243	446	319	765	32,013	1,257	2,753	4,697	8,707	2,512	11,219	43,232
11	136	13	43	243	446	319	765	33,145	1,278	2,769	4,704	8,746	2,532	11,278	43,423
7	49	7	6	14	83	44	127	3,020	133	307	612	1,052	397	1,449	5,369
30	354	98	35	96	613	254	867	43,509	1,572	3,544	9,960	15,076	4,717	19,793	63,302
...	...	...	...	...	...	...	...	277	21	38	97	156	75	231	508
85	2,189	505	86	640	3,711	1,464	5,175	8,443	203	623	1,453	2,279	1 021	3,300	11,743
2	66	9	..	7	84	80	164	5,911	86	184	865	1,134	289	1,423	7,334
1	230	152	73	306	763	145	907	1,886	81	156	253	518	136	654	2,540
...	...	.	..	..	..	...	...	14	1	1	1	3	2	5	19
...	..	...	...	...	...	...	...	98	...	16	12	28	14	42	140
125	2,888	771	200	1,369	5,253	1,987	7,330	64,078	2,005	4,869	13,282	20,240	6,051	26,697	90,955

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of Underground. Males. Overmen and Sirdars.	Coal-cutters.	Loaders.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.	Total Males and Females.
		Tons.								
	Brought forward .	11,466,189	1,378	25,097	9,309	4,926	7,382	48,087	8,731	56,818
Bihar and Orissa—contd.	Santhal Parganas—									
	Jainty coalfield . .	43,163	19	164	84	32	33	332	22	354
	Raniganj coalfield (part of).	82,778	13	339	6	28	116	502	74	576
	Total .	11,592,130	1,405	25,600	9,399	4,986	7,531	48,921	8,827	57,748
Central Provinces.	Chanda	217,421	28	982	495	61	322	1,888	146	2,034
	Chhindwara, Pench Valley coalfield.	831,817	75	2,408	683	382	403	3,951	550	4,501
	Total .	1,049,238	103	3,390	1,178	443	725	5,839	696	6,535
Punjab .	Jhelum, Salt Range coalfield	32,527	36	193	89	104	119	541	...	541
	Mianwali ,, . .	30,702	13	44	48	8	51	164	...	164
	Shahpur ,, .	9,588	3	60	...	5	50	118	...	118
	Total .	72,857	52	297	137	117	220	823	...	823
	Grand Total (Coal) for 1932.	18,719,587	2,397	42,034	15,796	8,904	13,022	83,713	14,583	98,296
	Grand Total for preceding year.	20,514,597	2,558	41,057	14,121	9,714	14,272	82,322	16,632	98,954
	Difference .	−1,795,010	−161	+977	+1,675	−750	−350	+1,391	−2,049	−658

DIX I—*contd.*

AND MINERALS—*contd.*

No. I—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

persons employed daily in and about the mines.

Open workings.									Surface.						
Males.									Males.						
Overmen and Sirdars.	Coal-cutters.	Loaders.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.	Total Males and Females.	Total Underground and Open workings.	Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.	Females.	Total Males and Females.	Grand Total.
AL—*contd.*															
125	2,888	771	200	1,269	5,253	1,987	7,240	64,058	2,095	4,869	13,282	20,246	6,651	26,897	90,955
1	...	...	...	6	7	5	12	366	29	63	80	172	18	190	556
...	...	...	...	...	...	...	...	576	37	42	98	177	26	203	839
126	2,888	771	200	1,275	5,260	1,992	7,252	65,000	2,161	4,974	13,460	20,595	6,755	27,350	92,350
...	...	...	...	...	...	..	...	2,034	59	94	374	527	84	611	2,645
...	...	...	1	8	9	5	14	4,515	108	496	701	1,305	467	1,772	6,287
..	...	..	1	8	9	5	14	6,549	167	590	1,075	1,832	551	2,383	8,932
1	...	...	...	9	10	...	10	551	36	46	203	285	...	285	836
...	...	...	...	...	...	...	...	164	13	6	96	115	4	119	283
...	...	...	...	...	...	...	...	118	7	11	60	78	...	78	196
1	...	..	..	9	10	...	10	833	56	63	359	478	4	482	1,315
130	3,025	786	216	1,536	5,732	2,316	8,048	100,344	3,093	8,535	10,969	32,197	9,948	42,145	148,489
183	3,839	1,064	427	3,200	8,713	4,467	13,180	112,134	4,110	9,478	21,182	34,770	11,363	46,133	158,267
—44	—814	—278	—181	—1,664	—2,981	—2,151	—5,132	—5,790	—417	—943	—1,213	—2,573	—1,415	—3,988	—9,778

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.							IRON
Bihar and Orissa	Singhbhum . .	666,874	...	...	...	...	...	...	...
Burma .	Mandalay . .	...	...	...	...	...	...	...	...
	Northern Shan States.	6,560	...	...	...	...	...	...	...
	Total .	6,560	...	...	...	...	...	...	...
	Grand Total (Iron Ore) for 1932.	673,434	...	...	...	...	...	...	...
	Grand Total for preceding year.	590,176	...	...	..	...	...	...	...
	Difference . .	+83,258	...	...	...	...	..	...	...
		Tons.							MANGANESE
Bihar and Orissa	Singhbhum	2,272	...	...	..	..	.	...	..
Bombay .	North Kanara .	612	..	...		...	...	..	...
	Panch Mahals .	...	...	...		...	..	...	...
	Total . .	612	..		.	..	...	..	...

DIX I—*contd.*

AND MINERALS—*contd.*

No. I—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.		Males.				Females.	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.			
ORE														
41	1,551	52	107	1,751	936	2,687	2,687	69	101	567	737	201	938	3,625
...	...	...	...	..	...	...	..	3	1	18	22	...	22	22
3	...	4	28	35	2	37	37	2	1	14	17	3	20	57
3	...	4	28	35	2	37	37	5	2	32	39	3	42	79
44	1,551	56	135	1,786	938	2,724	2,724	74	103	599	776	204	980	3,704
66	1,779	197	320	2,362	1,115	3,477	3,477	92	176	1,004	1,272	130	1,702	5,179
—22	—228	—141	—185	—576	—177	—753	—753	—18	—73	—405	—496	2 6	—722	—1,475
ORE														
5	26	2	88	121	52	173	173	2		..	2	29	31	204
1	...	95	...	96	27	123	123				...			123
...	...	...	...	...	10	10	10	4	2	20	26	...	26	36
1	...	9.	...	96	37	133	133	4	2	20	26		26	159

STATISTICS OF MINES

Table

Number of workers and output of minerals during

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
									MANGANESE
		Tons.							
Central Provinces	Balaghat . .	36,762	11	224	1	62	298	...	298
	Bhandara . .	10,918	...	...	...	...	...	..	...
	Chhindwara . .	10,041	...	...	...	...	...	...	...
	Nagpur . .	19,465	...	...	...	...	...	...	...
	Total .	77,186	11	224	1	62	298	...	298
Madras . .	Vizagapatam. .	8,049	...	...	2	...	2	...	2
	Grand Total (Manganese Ore) for 1932.	88,119	11	224	3	62	300	...	300
	Grand Total for preceding year.	347,373	26	527	22	128	703	...	703
	Difference . .	—259,254	—15	—303	19	— 66	—403	...	—403

DIX I—*contd.*

AND MINERALS—*contd.*

No. I—*contd.*

the year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.								Males.						
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.	Total Males and Females.		Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.	Females.	Total Males and Females.	
ORE—*contd.*														
19	372	3	56	450	462	912	1,210	14	21	84	119	222	341	1,551
21	133	4	20	238	169	407	407	9	5	44	58	25	83	490
5	102	...	..	107	94	201	201	4	6	35	45	11	56	257
25	269	7	16	317	219	536	536	16	7	88	111	26	137	673
70	936	14	92	1,112	944	2,056	2,354	43	39	251	333	284	617	2,971
6	338	...	...	344	193	537	539	6	11	6	23	...	23	562
82	1,310	111	180	1,673	1,226	2,899	3,199	55	52	277	384	313	697	3,896
248	4,177	77	450	4,952	4,215	9,167	9,870	128	147	1,051	1,326	786	2,112	11,982
—166	—2,877	—34	—270	—3,279	—2,989	—6,268	—6,671	—73	—95	—774	—942	—473	—1,415	—8,086

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.							LEAD
Burma	Northern Shan States.	372,586	73	797	221	1,625	2,716	...	2,716
	Southern Shan States.	...	...	...	...	5	5	...	5
	Grand Total (Lead Ore) for 1932.	372,586	73	797	221	1,630	2,721	...	2,721
	Grand Total for preceding year.	397,679	88	1,243	227	1,677	3,235	...	3,235
	Difference . .	−25,093	−15	−446	−6	−47	−514	...	−514
		Tons.							LE
Burma	Northern Shan States.	70,560						Figures included	
	Total of preceding year.	73,280	...	...	...	...	...	...	...
	Difference . .	−2,720	...	...	...	...	...	...	...

DIX I—*conta.*

AND MINERALS—*contd.*

No. I—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.		Males.				Females	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.			
ORE.														
1	...	...	18	19	...	19	2,735	78	199	161	438	...	438	3,173
...	...	...	...	...	...	...	5	...	...	7	7	...	7	12
1	...	...	18	19	...	19	2,740	78	199	168	445	...	445	3,185
1	...	...	22	23	...	23	3,258	55	179	269	503	...	503	3,761
...	...	...	—4	—4	...	—4	—518	+23	+20	—101	—58	...	—58	—576
AD.														
in those for Lead Ore.														
...	..	...	..	...	...	...	...	...	...	...	...	..	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
									ANTIMONIAL
Burma . .	Northern Shan States.	Tons. 642						Figures included	
	Total of preceding year.	1,505	...	...	...	...	...	...	..
	Difference . .	−863	...	...	...	...	...	...	...
									SIL
Burma . .	Northern Shan States.	Ounces. 5,998,956	...	...	...	..	...	Figures included	
	Total of preceding year.	5,900,400	...	...	...	.	...	...	...
	Difference .	+98,556	...	...	...	...	...	...	...
									GO
Bihar and Orissa	Singhbhum . .	Ounces 50	...	2	...	...	2	...	2
Burma . .	Mergui . .	...	...	...	...	...	.	...	...
	Southern Shan States.	...	...	...	...	...	...	...	...
	Total .	...	...	...	...	...	...	...	...
	Grand Total (Gold) for 1932.	50	...	2	...	...	2	...	2
	Grand Total for preceding year.	...	...	...	...	..	...	...	...
	Difference . .	+50	...	+2	...	...	+2	...	+2

DIX I—*contd.*

AND MINERALS—*contd.*

No. I—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.								Surface.						
Males.								Males.						
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.	Total Males and Females.	Total Underground and Open workings.	Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.	Females.	Total Males and Females.	Grand Total.
LEAD.														
in those for Lead Ore.														
...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
VEB.														
in those for Lead Ore.				...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	..	...	...	...	...	...	...	...	...	...	...	...
LD.														
...	...	...	...	...	...	..	2	...	1	1	2	...	2	4
...	15	...	...	15	5	20	20	...	...	...	...	...	...	20
...	...	6	2	8	...	8	8	...	..	2	2	..	2	10
...	15	6	2	23	5	28	28	...	...	2	2	...	2	30
...	15	6	2	23	5	28	30	...	1	3	4	...	4	34
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	+15	+6	+2	+23	+5	+28	+30	...	+1	+3	+4	...	+4	34

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.							**TIN**
Burma	Amherst	8	...	...	...	...	...	...	...
	Mergui	598	3	125	1	23	152	...	152
	Tavoy	2,350	5	1,007	70	36	1,118	...	1,118
	Thaton	1	...	...	...	...	...	...	...
	Grand Total (Tin Ore) for 1932.	2,957	8	1,132	71	59	1,270	...	1,270
	Grand Total for preceding year.	2,551	14	848	90	712	1,664	..	1,664
	Difference	+406	—6	+284	—19	—653	—394	...	—394
		Tons.							**WOLFRAM**
Burma	Mergui	97	Figures included						
	Tavoy	751							
	Grand Total (Wolfram Ore) for 1932.	848	...	...	...	...	...		...
	Grand Total for preceding year.	969	...	...	...	...	...	...	...
	Difference	—121	..	...	...	...	...	...	...
		Tons.							**CHROMITE**
Baluchistan	Zhob	228	...	...	...	...	...	...	...

DIX I—*contd.*

AND MINERALS—*contd.*

No. I—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.		Males.				Females.	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.			
ORE.														
...	...	...	84	84	25	109	109	...	...	...	...	...	...	109
25	932	157	367	1,481	30	1,511	1,663	42	108	130	280	...	280	1,943
17	614	727	846	2,204	164	2,368	3,486	62	68	194	324	49	373	3,859
...	5	3	36	44	...	44	44	...	1	...	1	...	1	45
42	1,551	887	1,333	3,813	219	4,032	5,302	104	177	324	605	49	654	5,956
61	1,492	359	1,942	3,854	134	3,988	5,652	131	103	74	308	...	308	5,960
−19	+59	+528	−609	−41	+85	+44	−350	−27	+74	+250	+297	+49	+346	−4
ORE.														
in those for Tin Ore.														
...	...	..	...	...		...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...		..
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
ORE														
2	5	...	...	7	...	7	7	3	..	16	19	...	19	26

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
									CHROMITE
Bihar and Orissa	Singhbhum . .	Tons. 7,638	...	...	...	...	...	...	...
	Grand Total (Chromite Ore) for 1932.	7,866	...	...	...	...	...	...	...
	Grand Total for preceding year.	14,938	6	39	...	...	45	...	45
	Difference . .	—7,072	—6	—39	...	...	—45	...	—45
		Tons.							COPPER
Bihar and Orissa.	Manbhum . .	...	1	16	...	...	17	...	17
	Singhbhum .	175,010	2	21	357	871	1,251	...	1,251
	Total .	175,010	3	37	357	871	1,268	...	1,268
Madras . .	Nellore . .	365	...	...	...	...	...	...	...
Rajputana .	Ajmer Marwara .	...	1	...	...	14	15	...	15
	Grand Total (Copper Ore) for 1932.	175,375	4	37	357	885	1,283	...	1,283
	Grand Total for preceding year.	153,636	5	26	367	885	1,283	...	1,283
	Difference . .	+21,739	—1	+11	—10	...	...	...	...

DIX I—*contd.*

AND MINERALS—*contd.*

No. I—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.								Surface.						
Males.								Males.						
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.	Total Males and Females.	Total Underground and Open workings.	Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.	Females.	Total Males and Females.	Grand Total.
ORE—*contd.*														
45	481	115	55	696	570	1,266	1,266	15	28	3	46	40	86	1,352
47	486	115	55	703	570	1,273	1,273	18	23	19	65	40	105	1,378
37	302	26	25	390	337	727	772	8	23	77	108	27	135	907
+10	+184	+89	+30	+313	+233	+546	+501	+10	+5	—58	—43	+13	—30	+471
ORE.														
...	...	...	...	...	...	...	17	...	...	20	20	11	31	48
...	...	...	...	...	...	...	1,251	22	140	166	328	161	489	1,740
...	...	...	...	...	...	...	1,268	22	140	186	348	172	520	1,788
2	...	...	52	54	11	65	65	...	...	...	...	...	...	65
1	...	1	4	6	12	18	33	...	...	...	...	...	...	33
3	...	1	56	60	23	83	1,366	22	140	186	348	172	520	1,886
...	...	...	7	7	...	7	1,290	19	108	241	368	148	516	1,806
+3	...	+1	+49	+53	+23	+76	+76	+3	+32	—55	—20	+24	+4	+80

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.							COPPER
Burma . .	Northern Shan States.	9,729							Figures included
	Total of preceding year.	13,437	...	...	...	...	...	...	...
	Difference . .	—3,708	...	...	...	...	...	...	...
		Tons.							NICKEL
Burma . .	Northern Shan States	3,580							Figures included
	Total of preceding year.	2,991	...	...	...	...	..	..	...
	Difference . .	+589	...	...	...	...	...	...	...
		Tons.							ZINC—CON
Burma . .	Northern Shan States.	44,484							Figures included
	Total of preceding year.	51,455	...	..	...	...	...	..	...
	Difference . .	—6,971	...	...	...	...	...	...	...

DIX I—*contd.*

AND MINERALS—*contd.*

No. I—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.		Males.				Females.	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.			
MATTE. in those for Lead ore.														
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
SPEISS in those for Lead ore.														
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
CENTRATES. in those for Lead ore.														
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	..	...	...	...	...	...	...	...	...	...	...	...

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Cwt.							MI
Bihar and Orissa.	Gaya	8,597	35	1,184	340	272	1,831	...	1,831
	Hazaribagh	15,500	203	2,494	232	786	3,715	...	3,715
	Monghyr	...	1	5	3	3	12	...	12
	Total	24,097	239	3,683	575	1,061	5,558	...	5,558
Madras	Nellore	8,319	36	282	114	202	634	...	634
	Nilgiris	51	1	6	1	6	14	...	14
	Total	8,370	37	288	115	208	648	...	648
Rajputana	Ajmer-Merwara	177	3	23	...	...	26	.	26
	Grand Total (Mica) for 1932.	32,644	279	3,994	690	1,269	6,232	...	6,232
	Grand Total for preceding year.	38,863	390	5,627	663	1,740	8,420	...	8,420
	Difference	—6,219	—111	—1,633	+27	—471	—2,188	...	—2,188

DIX I—*contd.*

AND MINERALS—*contd.*

No. I—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.		Males.				Females.	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.			
CA.														
50	1,400	186	735	2,371	53	2,424	4,255	69	50	36	155	33	188	4,443
41	729	41	147	958	30	988	4,703	133	218	339	690	208	898	5,601
...	..	...	..	....	...	...	12	...	...	...	..	...	...	12
91	2,129	227	882	3,329	83	3,412	8,970	202	268	375	845	241	1,086	10,056
18	66	24	80	188	216	404	1,038	49	150	138	337	490	827	1,865
...	...	...	...	...	...	...	14	1	3	3	7	...	7	21
18	66	24	80	188	216	404	1,052	50	153	141	344	490	834	1,886
1	7	1	...	9	18	27	53	...	11	..	11	...	11	64
110	2,202	252	962	3,526	317	3,843	10,075	252	432	516	1,200	731	1,931	12,006
146	2,327	603	377	3,453	602	4,055	12,475	305	792	672	1,769	706	2,475	14,950
—36	—125	—361	+585	+78	—285	—212	—2,400	—53	—360	—156	—569	+25	—544	—2,944

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STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.							SA
Punjab . .	Jhelum . .	113,135	20	299	48	77	444	88	532
	Mianwali . .	13,040	...	75	...	...	75	...	75
	Shahpur . .	24,111	...	72	10	33	115	40	155
	Grand Total (Salt) for 1932.	150,286	20	446	58	110	634	128	762
	Grand Total of preceding year.	134,916	30	556	60	117	763	209	972
	Difference . .	+15,370	—10	—110	—2	—7	—129	—81	—210
		Tons.							MAGNE
Madras . .	Salem . . .	13,492	...	...	...	...	...	...	...
	Total of preceding year.	4,978	...	...	...	...	...	...	...
	Difference . .	+8,514	...	...	...	...	...	...	...

DIX I—*contd.*

AND MINERALS—*contd.*

No. I—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.		Males.				Females.	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.			
LT.														
1	7	...	...	8	...	8	540	1	59	246	306	...	306	846
...	..	...	...	...	...	...	75	...	...	68	68	...	68	143
...	...	...	...	...	...	...	155	...	10	56	66	...	66	221
1	7	...	...	8	...	8	770	1	69	370	440	...	440	1,210
1	14	...	...	15	...	15	987	1	55	321	377	1	378	1,365
...	—7	..	...	—7	...	—7	—217	..	+14	+49	+63	—1	+62	—155
SITE.														
9	155	...	374	538	306	844	844	12	108	16	136	22	158	1,002
10	88	...	43	141	83	224	224	11	110	...	121	3	124	348
—1	+67	...	+331	+397	+223	+620	+620	+1	—2	+16	+15	+19	+34	+654

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.							STEA
Bihar and Orissa.	Singhbhum . .	152	...	...	...	...	...	...	...
Central Provinces.	Jubbulpore .	202	...	...	...	...	...	...	...
Madras . .	Nellore . . .	41	...	...	...	...	...	...	...
United Provinces.	Hamirpur . .	314	1	11	...	20	32	...	32
	Grand Total (Steatite) for 1932.	709	1	11	...	20	32	...	32
	Grand Total of preceding year.	856	1	18	26	178	223	..	223
	Difference .	—147	...	—7	26	—158	—191	...	—191
		Tons.							SLA
Bihar and Orissa.	Monghyr . .	1,345	...	...	...	...	...	...	...
	Singhbhum . .	193	...	...	...	...	...	...	...
	Total .	1,538	...	...	...	...	...	...	. .

DIX I—*contd.*

AND MINERALS—*contd.*

No. I—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.		Males.				Females.	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.			
TITE.														
4	8	...	...	12	20	32	32	2	...	10	12	14	26	58
2	25	...	16	43	50	93	93	...	...	...	...	...	...	93
1	6	4	...	11	1	12	12	1	...	...	1	...	1	13
1	24	...	16	41	12	53	85	...	...	15	15	22	37	122
8	63	4	32	107	83	190	222	3	...	25	28	36	64	286
6	73	58	68	205	80	285	508	5	16	16	37	38	75	583
+2	—10	—54	—36	—98	+3	—95	—286	—2	—16	+9	—9	—2	—11	—297
TE.														
10	54	83	40	187	39	176	176	...	...	...	...	.	...	176
2	..	29	...	31	7	38	38	...	...	..	..	..	...	88
12	54	62	40	168	46	214	214	.	...	...	...	...	.	214

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STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.							SLA
Punjab .	Gurgaon . .	1,531	...	...	...	..	...	...	...
	Kangra . . .	4,572	...	...	...	...	...	...	...
	Total .	6,103	...	...	...	...	...	..	..
	Grand Total (Slate) for 1932.	7,641	...	...	. .	...	.	...	...
	Grand Total of preceding year.	7,955	1	5	75	46	127	...	127
	Difference . .	—314	—1	—5	—75	—46	—127	..	—127
		Tons.							LIME
Bihar and Orissa	Ranchi . .	4,235	...	.	.		...		..
	Shahabad .	223 867	.	.	...	...	...	...	...
	Singhbum . .	1,479	...		...		..		.
	Total .	229,581	...	..	...	..	..	...	...
Burma . .	Amherst .	20,130	...		...	...	.	.	...
	Northern Shan States.	23,858	...		...		...	...	.
	Total .	47,988		...	...	.	...		
Central Provinces.	Bilaspur . .	7,616	...		...	...	...	...	
	Jubbulpore . .	262,530	...	...	...	..	...	..	. .
	Raipur . . .	1,776	...	...	...	...	...	.	...
	Yeotmal . .	4,572	.	...	...	...	.		...
	Total .	276,394	...	...	.	...	.		...
Madras . .	Kurnool . .	850	...	...	..	...	...	..	...

DIX I—*contd.*

AND MINERALS—*contd.*

No. I—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.		Males.				Females.	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.			
TE—*contd.*														
3	75	24	25	127	...	127	127	1	...	3	4	...	4	131
43	60	86	46	235	...	235	235	...	...	...	...	...	...	235
46	135	110	71	362	...	362	362	1	...	3	4	...	4	366
58	189	172	111	530	46	576	576	1	...	3	4	...	4	580
54	161	114	68	397	44	441	568	3	...	3	6	..	6	574
+4	+27	+58	+43	+133	+2	+135	+8	—2	...	..	—2	...	—2	+6
STONE.														
1	16	1	1	19	10	29	29	1	2	...	3	3	6	35
99	304	98	689	1,190	216	1,406	1,406	84	88	93	265	19	284	1,690
8	24	12	...	44	55	99	99	1	2	...	3	2	5	104
108	344	111	690	1,253	281	1,534	1,534	86	92	93	271	24	295	1,829
3	5	17	95	120	6	126	126	...	2	4	6	...	6	132
3	...	4	185	192	...	192	192	...	..	...	...	...	...	192
6	5	21	280	312	6	318	318		2	4	6	...	6	324
3	16	3	70	92	96	188	188	5	3	23	31	12	43	231
68	462	123	816	1,469	1,661	3,130	3,130	35	37	210	282	190	472	3,602
..	73	...	...	53	37	90	90	3	...	20	23	9	32	122
3	...	..	13	16	12	28	28	3	...	5	8	...	8	36
74	531	126	899	1,630	1,806	3,436	3,436	46	40	258	344	211	555	3,991
...	4		...	1	3	7	7	...	...	...	..	...	...	7

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.							LIME
Punjab	Attock	83 754	...	...	...	...	...	...	...
	Jhelum	30,311	...	...	...	...	...	...	...
	Rawalpindi	60,500	...	...	...	...	..		...
	Total	174,565	...	...	...	...	...	...	...
	Grand Total (Limestone) for 1932	725,378	...	...	...	...	...	...	...
	Grand Total of preceding year.	862,226	...	...	...	...	...	...	...
	Difference	—136,848	...	...	...	...	...	...	...
					STONE (CHIEFLY IGNEOUS				
		Tons.							
Bengal	Birbhum	82,109	...	...	...	...	...	..	...
Bihar and Orissa.	Gaya	33,672	...	...	...	...	...	...	...
	Monghyr	21,685	...	...	..	...	...	...	...
	Shahabad	33,545	...	...	...	...		...	
	Sambalpur	15,208	...	...	...	...	...		...
	Santhal Parganas	287,673	...	...	..	...	..	...	...
	Singhbhum	73,460	...	...	...	...	...	...	...
	Total	465,243	...	...	...	...	...	..	..
Bombay	Bombay	66,845	...	...	..	...	...	...	..
	Bombay Suburban	14,590	...	...	...	..	..	...	...
	Hyderabad	5,329	...	...	...	...	..	...	...
	Kaira	13,920	...	...	..	...	...	...	..
	Nasik	400	...	...	...	...	...		...
	Sukkur	24,000	...	...	...	...	...	.	...
	Surat	48,699	...	...	...	...	...	...	...
	Thana	22,870	...	...		...	..	...	.
	Total	196,653	...	...	...	...	..	..	...

DIX I—*contd.*

AND MINERALS—*contd.*

No. I—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.								Surface.						
Males.								Males.						
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.	Total Males and Females.	Total Underground and Open workings.	Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.	Females.	Total Males and Females.	Grand Total.
STONE—*contd.*														
15	19	...	112	146	...	146	146	9	5	137	151	...	151	297
2	36	...	...	38	...	38	38	1	...	48	49	...	49	87
6	58	30	40	134	...	134	134	5	3	200	208	...	208	342
23	113	30	152	318	...	318	318	15	8	385	408	...	408	726
211	997	288	2,021	3,517	2,096	5,613	5,613	147	142	740	1,029	235	1,264	6,877
223	1,004	396	2,282	3,905	1,972	5,878	5,878	151	137	920	1,208	240	1,448	7,326
—12	—7	—108	—261	—388	+123	—265	—265	—4	+5	—180	—179	—5	—184	—449
ROCK)														
1	174	3	42	220	12	232	232	16	104	281	401	52	453	685
25	60	41	217	343	185	528	528	...	1	...	1	...	1	529
2	20	20	69	111	49	160	160	...	2	...	2	...	2	162
15	10	2	362	389	85	474	474	.	...	...	...	...	..	474
4	67	...	...	71	...	71	71	1	...	...	1	...	1	72
27	140	234	533	934	64	998	998	63	60	378	501	229	730	1,728
8	...	1	253	262	157	419	419	2	...	...	2	...	2	421
81	297	298	1,434	2,110	540	2,650	2,650	66	63	378	507	229	736	3,386
...	16	109	121	246	66	312	312	6	12	15	33	64	97	409
1	4	...	20	25	...	25	25	2	12	25	39	...	39	64
...	..	...	62	62	..	62	62	...	..	...	...	...	...	62
2	..	10	...	12	..	12	12	5	3	60	68	10	70	90
...	...	...	2	2	2	4	4	...	...	...	...	...	...	4
4	...	6	36	46	...	46	46	4	2	6	12	...	12	58
8	18	46	182	254	149	403	403	6	1	10	17	...	17	420
16	19	...	191	226	137	363	363	10	..	8	18	81	99	462
31	57	171	614	873	354	1,227	1,227	33	30	124	187	155	342	1,569

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.	STONE (CHIEFLY IGNEOUS						
Burma	Bassein	...	...	...	...	...	...	...	...
	Lower Chhindwin	27,913	...	...	...	...	...	...	...
	Tavoy	750	...	...	...	...	...	...	...
	Thaton	143,190	...	...	...	...	...	...	...
	Toungoo	15,799	...	..	...	...	...	...	...
	Total	187,652	...	...	...	...	...	...	...
Central Provinces.	Akola	18,356	...	...	...	...	...	...	...
	Amraoti	9,922	...	...	...	...	...	...	...
	Chanda	4 012	...	...	...	...	...	...	...
	Saugor	4,960	...	...	..	...	...	...	...
	Total	37,250	...	...	...	...	...	...	...
Madras	Chingleput	53,167	...	...	...	...	...	...	...
	East Godaveri	6,563	...	...	...	...	...	...	...
	Guntur	49,094	...	...	...	...	...	...	...
	Kistna	481	...	...	...	...	...	...	...
	Madura	845	...	...	...	...	...	...	...
	Ramnad	1,786	...	...	...	...	...	...	...
	South Arcot	262	...	...	...	...	...	...	...
	Tinnevelly	1,713	...	...	...	...	...	...	...
	Total	113,914	...	...	...	...	...	...	...
Punjab	Jhelum	53,618	...	...	...	...	...	...	...
	Mianwali	35,712	...	...	...	...	...	...	...
	Rawalpindi	10,520	...	...	...	...	...	...	...
	Sheikhupura	31,351	...	..	...	..	...	.	...
	Total	161,201	...	...	...	...	...	...	..
United Provinces.	Allahabad	924	...	...	...	...	...	...	..
	Banda	11,916	...	...	...	. .	...	...	...
	Jhansi	27,364	...	..	...	...	...	...	...
	Saharanpur	5,426	...	...	...	...	..	_	...
	Total	45,630	...	...	...	...	...	...	...
	Grand Total (Stone) for 1932.	1,289,652	. .	...	...	..	...	.	..
	Grand Total for preceding year.	1,607,592	...	...	6	15	..	..	21
	Difference	—317,940	...	..	6	—15	..	...	—21

DIX I—*contd.*

AND MINERALS—*contd.*

No. 1—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.					Grand Total.
Males.								Males.					
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.	Total Males and Females.		Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.	Females.	Total Males and Females.	
ROCK) - *contd.*														
...	...	6	...	6	...	6	6	...	...	...	...	...	...	6
...	...	...	315	315	...	315	315	24	...	...	24	..	24	339
...	..	...	4	4	3	7	7	...	...	..	..	...	...	7
14	848	111	331	1,904	25	1,329	1,329	12	4	10	26	...	26	1,355
...	80	...	137	217	..	217	217	...	...	...	.	...	...	217
14	928	117	787	1,846	28	1,874	1,874	36	4	10	50	...	50	1,924
...	1·6	...	...	116	95	211	211	...	...	.	...	...	...	211
...	40	...	...	40	30	70	70	..	...	...	...	...	...	70
10	100	...	...	110	20	130	130	1	...	...	1	..	1	131
...	...	...	14	14	6	20	20	...	...		...	...		20
10	256	..	14	280	151	431	431	1	...	...	1	..	1	432
...	...	350	40	390	312	702	702	23		90	113	48	161	863
..	15	26	43	84	34	118	118	2	...	10	12	.	12	130
...	261	40	...	301	10	311	311	16	..	75	91	74	165	476
...	...	...	6	6	...	6	6	2	...	10	12	10	22	28
..	.	..	46	46	...	46	46	...	.	...	..	.	...	46
..	..	...	52	52	77	129	129	.		..	.	...	.	129
..	...	.	15	15	4	19	19	...	...	...	...	..	...	19
.	1	4	6	11	10	21	21	...		..	.	...	.	21
...	2 7	120	208	905	447	1,352	1,352	43	...	185	228	132	360	1,712
7	79	1	90	177	16	223	223	3	5	14	22	...	22	245
4	...	...	100	104	50	154	151	.	...	...	...	.	...	154
7	...	...	67	74	...	74	74	...	...	30	30	...	30	104
...	...	.	...	...	..	.	...	...	.	60	60	...	60	60
18	79	1	257	355	96	451	451	3	5	101	112		112	563
1	...	..	9	10	7	17	17	..	.	...	.	.	...	17
4	...	...	78	82	30	112	112	4	.	26	30	16	46	158
16	210	25	72	323	60	383	383	32	44	128	204	86	290	673
2	...	59	..	61	32	93	93	4	1	32	37	...	37	130
23	210	84	159	476	129	605	605	40	45	186	271	102	373	978
178	2,278	1,094	3,515	7,065	1,757	8,822	8 822	238	251	1,268	1,757	670	2 427	11,249
220	2,518	1 416	4,276	8 430	1,875	10 305	10,326	278	507	1,844	2,629	1,010	3,639	13,965
—42	—240	—322	—761	—1,365	—118	—1,483	—1,504	40	—256	—576	—872	340	—1,212	—2,716

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons							SAND
Bihar and Orissa.	Shahabad . .	13,601	...	...	...	...	...	...	...
Burma . .	Toungoo . .	12,850	...	...	...	...	...	...	...
United Provinces.	Allahabad . .	1,723	...	...	...	...	...	...	...
	Banda . .	1,540	...	...	...	...	...	..	...
	Total .	3,263	...	...	...	...	...	...	...
	Grand Total (Sandstone) for 1932.	29,714	...	...	...	...	...	...	...
	Grand Total for preceding year.	27,160	...	...	...	..	...	...	...
	Difference . .	+2,554	...	...	...	.	...	...	...

DIX I—*contd.*

AND MINERALS—*contd.*

No. 1—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.								Surface.						
Males.								Males.						
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.	Total Males and Females.	Total Underground and Open workings.	Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.	Females.	Total Males and Females.	Grand Total.
STONE.														
4	39	44	22	109	27	136	136	...	...	...	...	...	...	136
3	4	8	60	75	...	75	75	2	...	4	6	...	6	81
1	1	6	17	25	5	30	30	1	...	...	1	...	1	31
...	...	2	7	9	7	16	16	...	2	...	2	...	2	18
1	1	8	24	34	12	46	46	1	2	...	3	...	3	49
8	44	60	106	218	39	257	257	3	2	1	9	...	9	266
6	65	18	35	124	32	156	156	4	2	...	6	...	6	162
+2	—21	+42	+71	+94	+7	+101	+101	—1	...	+4	+3	...	+8	+104

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.							LATE
Burma .	Thaton . . .	23,351	...	...	...	...	...	...	...
	Toungoo . .	56	...	...	...	...	...	...	...
	Total .	23,407	...	...	...	...	...	...	...
Central Provinces.	Jubbulpore . .	3,798	...	...	...	...	...	...	...
	Grand Total (Laterite) for 1932.	27,205	...	...	...	...	...	...	...
	Grand Total for preceding year.	52,776	...	...	...	...	...	...	...
	Difference .	—25,571	...	...	...	...	...	...	...
		Tons.							GRA
Bihar and Orissa.	Singhbhum . .	2,702							
Madras .	Chingleput . .	14,946							
	Guntur . .	3,080						Figures inclu	
	South Arcot . .	160							
	Tinnevelly .	4,364							
	Total .	22,550							
	Grand Total (Gravel) for 1932	25,252	...	...	...	...	...	...	...
	Grand Total for preceding year.	25,701	...	...	...	...	...	...	...
	Difference .	—449	...	...	...	...	...	...	...

DIX I—*contd.*

AND MINERALS—*contd.*

No. 1—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.								Males.						
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.	Total Males and Females.		Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.	Females.	Total Males and Females.	
RITE.														
...	...	...	16	16	...	16	16	...	2	...	2	...	2	18
...	...	...	2	2	...	2	2	...	...	...	...	...	...	2
...	...	...	18	18	...	18	18	...	2	...	2	...	2	20
3	11	5	14	33	29	62	62	3	...	8	11	...	11	73
3	11	5	32	51	29	80	80	3	2	8	13	...	13	93
2	3	1	81	87	20	107	107	2	...	3	5	...	5	112
+1	+8	+4	-49	—36	+9	—27	—27	+1	+2	+5	+8	...	+8	—19
VEL.														
ded in those for Stone.														
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	..
...	...	...	...	...	...	...	...	...	...	...	...	...	...	..

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.							MU
Bihar and Orissa.	Singhbhum . .	1,760							
Bombay .	Bombay Suburban	342							
	Thana . . .	10,791							
	Total .	11,133							
Madras .	Guntur . .	1,419							
	Kistna . . .	152							
	Total .	1,571							
United Provinces.	Allahabad . .	920							
	Grand Total (Murum) for 1932.	15,384	...	...	...	...	...	...	...
	Grand Total for preceding year.	58,650	...	...	...	...	...	...	...
	Difference .	—43,266	...	...	...	...	...	...	...
		Tons.							FIRE
Bengal . .	Burdwan . .	9,433	...	...	...	...	..	...	...
Bihar and Orissa.	Manbhum . .	4,968	...	...	...	...	...	...	...
	Sambalpur . .	6,252	...	...	...	...	...	...	...
	Total .	11,215	...	...	..	...	...	...	...

Figures included in those for

DIX I—*contd.*

AND MINERALS—*contd.*

No. 1—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.								Surface.						
Males.								Males.						
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.	Total Males and Females.	Total Underground and Open workings.	Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.	Females.	Total Males and Females.	Grand Total.
RUM.														
Stone.														
...	...		...	...	...	...	...	...	.	...	...	...	..	...
...	...	4	215	219	130	349	349	1	7		8	...	8	357
...	...	—4	—215	—219	—130	—349	—349	—1	7	..	—8	...	—8	—357
CLAY.														
1	30	44	17	92	39	131	131	...	..	32	32	10	42	173
2	24	...	59	85	4	89	89	2	3	42	47	17	64	153
1	31	...	2	34	4	38	38	2	1	48	51	15	66	104
3	55	...	61	119	8	127	127	4	4	90	98	32	130	257

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and Mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.							FIRE
Central Provinces.	Jubbulpore . .	12,045	...	...	...	...	...	...	...
	Grand Total (Fire Clay) for 1932.	32,693	...	...	...	...	...	...	...
	Grand Total for preceding year.	27,500	...	...	...	...	...	...	...
	Difference .	+5,193	...	...	...	...	...	...	...
		Tons.							CHINA
Bihar and Orissa.	Bhagalpur . .	250	...	...	...	...	...	...	...
	Singhbhum . .	9,120	...	...	...	...	...	...	...
	Total .	9,370	...	...	...	...	...	...	...
Rajputana .	Ajmer-Merwara .	650	...	...	...	...	...	.	...
	Grand Total(China Clay) for 1932.	10,020	...	...	...	...	...	...	...
	Grand Total for preceding year.	17,884	4	24	...	41	69	...	69
	Difference .	—7,864	—4	—24	...	—41	—69	...	—69

DIX I—*contd.*

AND MINERALS—*contd.*

No. 1—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total
Males.					Females.	Total Males and Females.		Males.				Females.	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.			
CLAY—*contd.*														
4	...	1	102	107	140	247	247	2	...	75	77	53	130	377
8	85	45	180	318	187	505	505	6	4	197	207	95	302	807
17	74	6	151	248	514	762	762	4	20	67	91	41	132	894
−9	+11	+39	+29	+70	−327	−257	−257	+2	−16	+130	+116	+54	+170	−87
CLAY.														
1	11	...	...	12	11	23	23	...	...	...	...	...	...	23
14	236	2	44	296	478	774	774	20	30	137	187	233	420	1,194
15	247	2	44	308	489	797	797	20	30	137	187	233	420	1,217
2	4	...	...	6	...	6	6	...	..	...	...	...	...	6
17	251	2	44	314	489	803	803	20	30	137	187	233	420	1,223
15	194	13	40	262	361	623	692	15	24	112	151	111	262	954
+2	+57	−11	+4	+52	+127	+180	+111	+5	+6	+25	+36	+122	+158	+269

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons							CL
Assam . .	Lakhimpur . .	6,495	...	...	...	...	...	..	...
Bengal . .	Burdwan	2,745	..	...	...	...	...	...	...
Central Provinces.	Jubbulpore . .	4,556	..	...	...	...	...	...	...
Punjab . .	Attock . . .	16,089	Figures included in those						
	Grand Total (Clay) for 1932.	29,885	...	...	...	...	...	...	...
	Grand Total for preceding year.	56,638	...	...	...	...	...	...	...
	Difference	—26,753	...	...	...	...	...	..	...
		Tons.							BARY
Madras . .	Anantapur . .	166	...	...	...	...	...	...	...
	Cuddapah	1,297	...	...	..	...	...	..	...
	Kurnool .	630	...	...	...	...	...	...	...
	Grand Total (Barytes) for 1932	2,093	...	...	...	...	...	...	...
	Grand Total for preceding year.	2,300	...	...	...	..	...	...	...
	Difference .	—207	.	...	...	..	...	...	...

DIX. I—*contd.*

AND MINERALS—*contd.*

No. 1—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.		Males.				Females.	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.			
AY.														
1	...	...	15	16	6	22	22	1	...	...	1	...	1	23
...	27	...	...	27	18	45	45	...	6	...	6	...	6	51
1	10	...	5	16	...	16	16	1	8	...	9	9	18	34
for Limestone.														
2	37	...	20	59	24	83	83	2	14	...	16	9	25	108
6	...	36	80	122	74	196	196	9	...	...	9	...	9	205
—4	+37	—36	—60	—63	—50	—113	—113	—7	+14	...	+7	+9	+16	—97
TES.														
...	12	..	...	12	12	24	24	2	...	...	2	...	2	26
...	45	8	8	61	38	99	99	12	16	8	36	64	100	199
...	4	6	30	40	13	53	53	...	...	..	...	...	...	53
...	61	14	38	113	63	176	176	14	16	8	36	64	102	278
2	12	5	76	95	...	95	95	3	...	24	27	27	54	149
—2	+49	+9	—38	+18	+63	+81	+81	+11	+16	—16	+11	+37	+48	+129

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.							
Madras . .	Trichinopoly . .	121	...	...	...	...	...	...	...
	Total of preceding year.	109	...	...	...	...	...	...	...
	Difference .	+12	...	...	...	...	...	...	...
		Tons.							
Central Provinces.	Chanda . .	261	1	4	...	...	5	...	5
United Provinces.	Banda . .	110	...	4	...	...	4	...	4
	Grand Total (Ochre) for 1932.	371	1	8	...	...	9	...	9
	Grand Total of preceding year.	507	1	9	...	...	10	...	10
	Difference .	—136	...	—1	...	...	—1	...	—1
		Tons.							
Central Provinces.	Jubbulpore . .	19	Figures included in those for						
	Total of preceding year.	38	...	...	...	...	...	...	...
	Difference .	—19	...	...	...	...	...	...	...

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DIX I—*contd.*

AND MINERALS—*contd.*

No. 1—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.								Surface.						
Males.								Males.						
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.	Total Males and Females.	Total Underground and Open workings.	Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.	Females.	Total Males and Females.	Grand Total.
TITE.														
...	...	...	4	4	22	26	26	. .	...	...	...	...	...	26
...	..	...	5	5	17	22	22	...	...	...	...	...	...	22
...	...	...	—1	—1	+5	+4	+4	...	...	...	...	...	...	+4
RE.														
1	...	...	1	2	3	5	10	...	4	...	4	4	8	18
...	...	...	...	...	...	...	4	1	...	...	1	2	3	7
1	...	...	1	2	3	5	14	1	4	...	5	6	11	25
1	...	...	4	5	5	10	20	1	5	2	8	23	31	51
...	...	..	—3	—3	—2	—5	—6	...	—1	—2	—3	—17	—20	—26
EARTH.														
Limestone.														
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	.	...	. .	...	...	...	...

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		Tons.							
Bihar and Orissa.	Singhbhum . .	537	...	...	...	...	...	...	...
	Total of preceding year.	250	...	...	...	...	...	...	...
	Difference .	+287	...	...	...	...	...	...	...
		Tons.							
Madras . .	Trichinopoly . .	75	Figures included in						
Punjab . .	Jhelum . .	2,261	Figures included in						
	Grand Total (Gypsum) for 1932.	2,336	...	...	...	...	...	...	...
	Grand Total of preceding year.	3,556	...	...	...	...	...	...	...
	Difference .	—1,220	...	...	...	...	...	...	...
		Tons.							
Rajputana .	Ajmer-Merwara .	281	..	...	...	...	...	...	...
	Total for preceding year.	...	...	...	...	...	...	...	...
	Difference .	+281	...	...	...	...	...	...	...

DIX I—*contd.*

AND MINERALS—*contd.*

No. 1—*contd.*

year 1932 at mines under the Indian Mines Act—*contd.*

daily in and about the mines.

Open workings.							Total Underground and Open workings.	Surface.						Grand Total.
Males.					Females.	Total Males and Females.		Males.				Females.	Total Males and Females.	
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.				Clical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.			
NITE.														
1	11	...	...	12	...	12	12	...	...	6	6	8	14	26
1	22	...	3	26	...	26	26	...	1	12	13	7	20	46
...	—11	...	—3	—14	...	—14	—14	...	—1	—6	—7	+1	—6	—20
SUM.														
those for Apatite.														
those for Salt.														
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
YL.														
3	44	...	11	58	2	60	60	...	...	...	...	...	...	60
1	39	..	...	40	...	40	40	...	...	...	...	...	...	40
+2	+5	...	+11	+18	+2	+20	+20	...	...	...	...	...	...	+20

APPEN

STATISTICS OF MINES

Table

Number of workers and output of minerals during the

Province.	District and mineral field.	Total Output.	Average number of persons employed						
			Underground.						
			Males.					Females.	Total Males and Females.
			Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.		
		lb.							
Burma . .	Tavoy . . .	27							
	Total for preceding year.	42	...	...	...	...	...	...	...
	Difference .	—15	...	...	...	...	...	...	...
		Tons.							
Rajputana .	Ajmer-Merwara .	473	...	...	...	...	...	...	...
	Total for preceding year.	333	...	...	...	...	...	...	...
	Difference .	+140	...	...	...	...	...	...	...
	Grand Total (Metalliferous Mines) for 1932.	...	397	6,651	1,400	4,035	12,483	128	12,611
	Grand Total for preceding year.	...	566	8,922	1,536	5,539	16,563	209	16,772
	Difference	...	—169	—2,271	—136	—1,504	—4,080	—81	—4,161
	Grand Total (All Minerals) for 1932.	...	...	...	...	...	96,196	14,711	110,907
	Grand Total for preceding year.	...	...	...	...	...	98,885	16,841	115,726
	Difference .	...	...	...	...	...	—2,689	—2,130	—4,819

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Figures included in those

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DIX I—*contd.*

AND MINERALS—*concld.*

No. 1—*concld.*

year 1932 at mines under the Indian Mines Act—*concld.*

daily in and about the mines.

Open workings.								Surface.						
Males.								Males.						
Foremen and Mates.	Miners.	Other skilled labour.	Other unskilled labour.	Total Males.	Females.	Total Males and Females.	Total Underground and Open workings.	Clerical and supervising staff.	Skilled labour.	Unskilled labour.	Total Males.	Females.	Total Males and Females.	Grand Total.
MUTH.														
for Tin Ore.														
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
PAR.														
1	6	...	...	7	1	8	8	...	...	...	...	...	...	8
1	1	...	6	8	1	9	9	...	...	...	...	...	...	9
...	+5	...	—6	—1	...	—1	—1	...	...	...	...	..	...	—1
838	11,344	3,112	9,230	24,524	8,445	32,969	45,580	1,054	1,774	4,874	7,702	2,887	10,589	56,169
1,250	14,407	3,329	11,134	30,120	11,612	41,732	58,504	1,255	2,413	6,719	10,387	3,624	14,011	72,515
—412	—3,063	—217	—1,904	—5,596	—3,167	—8,763	—12,924	—201	—639	—1,845	—2,685	737	—3,422	—16,346
...	...	...	...	30,258	10,761	41,017	151,924	...	...	...	39,889	12,835	52,734	204,658
...	...	...	...	38,833	16,079	54,912	170,638	...	...	...	45,157	14,987	60,144	230,782
...	..	...	...	—8,577	—5,318	—13,895	—18,714	...	...	...	—5,258	—2,152	—7,410	—26,124

APPEN

Table

Average hours worked per week in

Mineral Field.	Underground.					
	Overmen and Sirdars. — Foremen and Mates.	Miners.	Loaders.	Skilled Labour.	Unskilled Labour.	Females.
Jharia Coalfield (Bihar & Orissa)	48	43	43	46	44	43
Raniganj ,, (Bengal)	49	43	44	46	46	43
Giridih ,, (Bihar & Orissa)	38	35	35	39	38	36
Assam ,,	39	34	40	41	40	...
Punjab ,,	42	41	41	41	50	...
Baluchistan Coalfields	38	38	37	42	36	...
Pench Valley Coalfield (Central Provinces)	51	46	48	48	48	47
Bihar & Orissa Mica	43	43	...	44	42	...
Madras Mica	46	45	...	45	45	...
Central Provinces Manganese	48	48	...	48	48	...
Central Provinces Limestone	...	...	...	...	...	...
Bihar & Orissa Iron	...	...	...	...	...	...
Burma Lead	49	49	...	49	48	...
Burma Tin	47	46	...	38	43	...
Punjab Salt	54	41	...	46	45	24
Bihar & Orissa China Clay	...	...	...	...	...	...
Punjab Slate	...	...	...	...	...	...
United Provinces Stone	...	...	...	...	...	...

DIX I—*contd.*

No. 2.

each important mining field during the year 1932.

Open workings.						Surface.			
Overmen and Sirdars. — Foremen and Mates.	Miners.	Loaders.	Skilled Labour.	Unskilled Labour.	Females.	Clerical and Supervising Staff.	Skilled Labour.	Unskilled Labour.	Females.
47	43	45	46	46	44	54	52	52	50
47	43	42	40	44	43	53	51	50	49
37	30	30	...	30	32	47	44	36	39
12	45	52	58	34	...	45	47	41	41
48	...	...	...	51	...	44	47	45	24
...	...	...	...	...	...	36	42	36	42
...	...	...	48	46	46	52	53	52	50
42	42	...	45	42	40	47	47	47	50
47	44	...	45	46	45	50	48	48	47
49	44	...	48	48	46	49	49	47	48
49	48	...	48	48	47	48	48	48	46
48	48	...	44	48	48	48	48	48	48
49	...	...	...	48	...	52	52	50	...
51	46	...	48	48	44	46	50	50	47
54	54	...	...	...	...	54	44	46	...
44	44	...	48	44	44	45	43	44	43
50	43	...	51	51	...	48	...	48	...
47	44	...	42	47	45	48	43	44	43

APPEN

Table

Analysis of figures relating to

Province.	Coalfield.	Coal.					
		Opening stock.	Raisings.	Total.	Despatches.	Colliery consumption.	Coal delivered for coking.
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Assam	Makum	...	170,299	170,299	156,978	10,628	2,693
	Nazira	801	38,403	39,204	36,932	1,380	...
	Sibsagar	324	100	424	75	...	...
Baluchistan	Baluchistan	891	13,957	14,848	13,642	92	...
Bengal (and part of Bihar and Orissa).	Raniganj	328,592	6,419,007	6,747 599	5,785,906	423,301	51,324
Bihar and Orissa.	Jharia	953,021	8,551,283	9,504,304	6,835,854	479,330	1,115,088
	Bokaro	7,644	1,348,973	1,356,617	1,279,174	50,323	16,295
	Karanpura	6,799	409,566	416,365	398,693	14,297	...
	Giridih	55,354	583,243	638,597	551,728	23,339	...
	Jainty	1,523	43,163	44,686	32,577	11,199	...
	Hingir-Rampur		19,498	20,089	16,690	3,357	...
Central Provinces.	Pench Valley	10,423	831,817	842,240	778,005	49,136	...
	Chanda	4,091	217,421	221,512	198,230	20,252	...
Punjab	Salt Range	1,476	72,857	74,333	68,264	2,357	...
	Total 1932	1,371,580	18,719,587	20,091,117	16,152,757	1,087,991	1,185,400

DIX I—*contd.*

No. 3.

the output of Coal and Coke, 1932.

Coal despatched to coke factories.	Closing stocks.	Coke.									
		Opening stocks.		Coke made.		Despatches.		Colliery consumption.		Closing stocks.	
		Hard.	Soft.	Hard.	Soft.	Hard.	Soft.	Hard.	Soft.	Hard.	Soft.
Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
...	...	...	...	517	...	496	...	21	...	...	...
...	892	...	...	...	...	...	...	...	...	...	...
...	349	...	...	...	...	...	...	...	...	...	...
...	1,114	...	...	...	...	...	...	...	...	...	...
...	488,068	...	1,852	...	36,858	...	37,120	...	272	...	1,318
1,404,657	1,074,032	8,163	5,836	54,899	719,980	49,455	715,723	248	617	13,359	9,476
4,097	10,825	283	...	5,605	3,390	4,975	3,193	21	...	892	197
...	3,375	...	...	...	...	...	...	...	...	...	...
34,149	63,580	...	...	...	...	...	...	...	...	...	...
...	910	...	...	...	...	...	...	...	...	...	...
...	33	...	...	...	...	...	...	...	...	...	...
...	15,099	...	...	...	...	...	...	...	...	...	...
...	3,030	...	...	...	...	...	...	...	...	...	...
...	3,712	...	...	...	...	...	...	...	...	...	...
1,442,903	1,664,969	8,446	7,688	61,021	760,228	54,926	756,036	290	989	14,251	10,991

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APPENDIX I—*contd.*

Table No. 4.

Numbers of mines opened, closed and inspected, during the year 1932.

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked under mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines: Opened during the year.	Number of mines: Closed during the year.	Inspections: Number of mines inspected.	Inspections: Number of inspections.
			COAL.					
Assam	Lakhimpur—Makum Coalfield	6	6	...	...	1	7	21
	Naga Hills—Nazira ,,	1	...	1	...	...	1	3
	Sibsagar	1	...	1	...	1	1	1
Baluchistan	Baluchistan Coalfield	14	...	14	2	2	12	15
Bengal (and part of Bihar and Orissa).	Raniganj Coalfield	197	153	44	13	18	205	808
Bihar and Orissa.	Jharia Coalfield	225	168	57	15	27	242	1,129
	Bokaro ,,	5	5	...	...	...	5	16
	Karanpura Coalfield	4	3	1	...	...	4	9
	Giridih Coalfield	8	5	3	2	2	8	33
	Jainty ,,	7	1	6	2	...	6	6
	Hingir-Rampur Coalfield	1	1	...	...	...	1	1
Central Provinces.	Pench Valley Coalfield	22	13	9	7	2	21	58
	Chanda Coalfield	6	6	...	...	...	5	15

APPENDIX I—*contd.*

Table No. 4—*contd.*

Numbers of mines opened, closed and inspected, during the year 1932—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked under mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines: Opened during the year.	Number of mines: Closed during the year.	Inspections: Number of mines inspected.	Inspections: Number of inspections.
			COAL—*contd.*					
Punjab . .	Salt Range Coalfield . .	18	...	18	9	5	13	14
	Grand Total (Coal) for 1932 .	515	361	154	50	58	531	2,129
	Grand Total of preceding year.	540	382	158	45	67	514	1,983
	Difference .	—25	—21	—4	+5	—9	+17	+146
			IRON ORE.					
Bihar and Orissa	Singhbhum	2	...	2	...	...	2	5
Burma . .	... .	3	...	3	3	..	2	2
	Grand Total (Iron Ore) for 1932	5	...	5	3	...	4	7
	Grand Total of preceding year.	10	2	8	1	7	4	4
	Difference .	—5	—2	—3	+2	—7	...	+3
			MANGANESE ORE.					
Bihar and Orissa	Singhbhum	7	...	7	3	5	9	9
Bombay . .	... .	3	1	2	1	1	...	...

APPENDIX I—*contd.*

Table No. 4—*contd.*

Numbers of mines opened, closed and inspected, during the year 1932—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked under mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines: Opened during the year.	Number of mines: Closed during the year.	Inspections: Number of mines inspected.	Inspections: Number of inspections.
			MANGANESE ORE—*contd.*					
Central Provinces.	...	10	1	9	1	6	10	20
Madras	Vizagapatam	3	...	3	3	...	2	2
	Grand Total (Manganese Ore) for 1932.	23	2	21	8	12	21	31
	Grand Total of preceding year.	56	8	48	6	38	19	20
	Difference	—33	—6	—27	+2	—26	+2	+11
			LEAD ORE.					
Burma	...	2	2	...	...	...	1	3
	Total of preceding year	2	2	...	...	...	2	14
	Difference	...	..	...	...	...	—1	—11
			GOLD.					
Bihar and Orissa	Singhbhum	1	...	1	1	...	..	...
Burma	...	2	...	2	2	...	1	2
	Grand Total (Gold) in 1932	3	...	3	3	...	1	2
	Grand Total of preceding year	1	...	1	...	1	1	1
	Difference	+2	...	+2	+3	—1	...	+1

APPENDIX I—*contd.*

Table No. 4—*contd.*

Number of mines opened, closed and inspected, during the year 1932—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked under mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines: Opened during the year.	Number of mines: Closed during the year.	Inspections: Number of mines inspected.	Inspections: Number of inspections.
			TIN AND WOLFRAM ORE.					
Burma . .	... .	138	3	135	57	21	43	52
	Total of preceding year . .	136	5	131	27	22	27	31
	Difference .	+2	—2	+4	+30	—1	+16	+21
			CHROMITE ORE.					
Baluchistan .	Zhob	1	...	1	1	1	...	...
Bihar and Orissa	Singhbhum	8	...	8	2	...	5	5
	Grand Total (Chromite Ore) for 1932.	9	...	9	3	1	5	5
	Grand Total of preceding year	39	...	39	2	33	11	11
	Difference .	—30	...	—30	+1	—32	—6	—6
			COPPER ORE.					
Bihar and Orissa	... .	2	1	1	...	...	2	7
Madras . .	Nellore	1	...	1	1	1	...	...
Rajputana .	Ajmer-Merwara . .	1	...	1	1	1	...	...
	Grand Total (Copper Ore) for 1932.	4	1	3	2	2	2	7
	Grand Total of preceding year	3	1	2	...	1	2	3
	Difference .	+1	...	+1	+2	+1	...	+4

APPENDIX I—*contd.*

Table No. 4—*contd.*

Number of mines opened, closed and inspected, during the year 1932—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked under mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines: Opened during the year.	Number of mines: Closed during the year.	Inspections: Number of mines inspected.	Inspections: Number of inspections.
			MICA.					
Bihar and Orissa.	... .	279	23	256	126	103	10	12
Madras .	... .	32	4	28	8	7	11	11
Rajputana .	Ajmer-Merwara . . .	4	...	4	4	3	...	...
	Grand Total (Mica) for 1932 .	315	27	288	138	113	21	23
	Grand Total of preceding year	342	34	308	64	163	129	155
	Difference .	—27	—7	—20	+74	—50	—108	—132
			SALT.					
Punjab . .	Salt Range	3	2	1	...	...	3	5
	Total of preceding year .	3	2	1	...	...	3	6
	Difference .	..	...	...	...	...	...	—1

APPENDIX I—*contd.*

Table No. 4—*contd.*

Number of mines opened, closed and inspected, during the year 1932—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked under mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines: Opened during the year.	Number of mines: Closed during the year.	Inspections: Number of mines inspected.	Inspections: Number of inspections.
				MAGNESITE.				
Madras . .	Salem	4	...	4	2	...	1	1
	Total of preceding year .	2	...	2	...	1	1	2
	Difference .	+2	...	+2	+2	—1	...	—1
				STEATITE.				
Bihar and Orissa.	Singhbhum	2	...	2	.	...	2	2
Central Provinces.	Jubbulpore	3	...	3	2	1	..	..
Madras . .	Nellore	2	...	2	...	...	2	2
United Provinces.	Hamirpur	6	...	6	5	4	...	...
	Grand Total (Steatite) for 1932	13	...	13	7	5	4	4
	Grand Total of preceding year	19	...	19	5	13	32	36
	Difference .	—6	..	—6	+2	—8	—28	—32

APPENDIX I—*contd.*

Table No. 4—*contd.*

Number of mines opened, closed and inspected, during the year 1932—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked under mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines: Opened during the year.	Number of mines: Closed during the year.	Inspections: Number of mines inspected.	Inspections: Number of inspections.
				SLATE.				
Bihar and Orissa.	...	7	...	7	2	1	2	2
Punjab	...	13	...	13	2	1	...	...
	Grand Total (Slate) for 1932	20	...	20	4	2	2	2
	Grand Total of preceding year	19	...	19	5	2	12	16
	Difference	+1	...	+1	—1	...	—10	—14
				LIMESTONE.				
Bihar and Orissa.	...	11	...	11	3	1	10	10
Burma	...	6	...	6	2	...	3	4
Central Provinces.	...	21	2	19	10	4	15	21
Madras	Kurnool	1	...	1	1	1	1	1
Punjab	...	5	1	4	1	...	2	2
	Grand Total (Limestone) for 1932.	44	3	41	17	6	31	3
	Grant Total of preceding year	40	4	36	4	7	28	31
	Difference	+4	—1	+5	+13	—1	+3	+7

APPENDIX I—*contd.*

Table No. 4—*contd.*

Number of mines opened, closed and inspected, during the year 1932—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked under mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines: Opened during the year.	Number of mines: Closed during the year.	Inspections: Number of mines inspected.	Inspections: Number of inspections.
			STONE.					
Bengal	Birbhum	4	1	3	...	...	2	2
Bihar and Orissa.	...	53	...	53	13	8	31	33
Bombay	...	18	2	16	7	4	32	46
Burma	...	10	...	10	2	2	17	23
Central Provinces.	...	5	...	5	1	1	11	17
Madras	...	23	...	23	17	5	15	15
Punjab	...	11	1	10	..	...	3	3
United Provinces.	...	16	...	16	4	2	...	...
	Grand Total (Stone) for 1932	140	4	136	44	22	111	139
	Grand Total of preceding year	149	4	145	28	33	180	208
	Difference	—9	...	—9	+16	—11	—69	—69
			LATERITE.					
Burma	...	2	..	2	1	...	1	1
Central Provinces.	Jubbulpore	2	...	2	..	...	3	4
	Grand Total (Laterite) for 1932	4	...	4	1	...	4	5
	Grand Total of preceding year	5	...	5	1	1	1	1
	Difference	—1	...	—1	...	—1	+3	+4

APPENDIX I—*contd.*

Table No. 4—*contd.*

Number of mines opened, closed and inspected, during the year 1932—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked under mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines: Opened during the year.	Number of mines: Closed during the year.	Inspections: Number of mines inspected.	Inspections: Number of inspections.
			SANDSTONE.					
Bihar and Orissa.	Shahabad	3	...	3	1	...	4	4
Burma . .	Toungoo	1	...	1	...	...	1	1
United Provinces.	... .	3	. .	3	...	...	...	...
	Grand Total (Sandstone) for 1932.	7	...	7	1	...	5	5
	Grand Total of preceding year.	7	...	7	...	...	10	11
	Difference .	...	...	...	+1	...	—5	—6
			FIRE CLAY.					
Bengal . .	Burdwan	2	...	2	...	...	3	4
Bihar and Orissa.	... .	3	...	3	1	1	2	2
Central Provinces.	Jubbulpore	3	...	3	1	1	4	6
	Grand Total (Fire Clay) for 1932	8	...	8	2	2	9	12
	Grand Total of preceding year.	9	1	8	2	2	3	3
	Difference .	—1	—1	...	...	...	+6	+9

APPENDIX I—*contd.*

Table No. 4—*contd.*

Number of mines opened, closed and inspected, during the year 1932—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked under mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines: Opened during the year.	Number of mines: Closed during the year.	Inspections: Number of mines inspected.	Inspections: Number of inspections.
				CHINA CLAY.				
Bihar and Orissa.	... .	5	...	5	1	1	3	3
Rajputana .	Ajmer-Merwara . . .	1	...	1	...	...	...	...
	Grand Total (China Clay) for 1932.	6	...	6	1	1	3	3
	Grand Total of preceding year	11	...	11	4	5	14	17
	Difference .	−5	...	−5	−3	−4	−11	−14
				CLAY.				
Assam . .	Lakhimpur	1	...	1	...	1	1	1
Bengal . .	Burdwan	1	1	...	1	...	...	...
Central Provinces.	Jubbulpore . . .	1	...	1	...	...	1	2
	Grand Total (Clay) for 1932 .	3	1	2	1	1	2	3
	Grand Total of preceding year .	4	1	3	2	1	1	1
	Difference .	−1	...	−1	−1	...	+1	+2
				OCHRE.				
Central Provinces.	Chanda	2	..	2	..	1	2	2
United Provinces.	Banda . . .	1	...	1	..	...	...	...
	Grand Total (Ochre) for 1932	3	...	3	...	1	3	2
	Grand Total of preceding year.	3	...	3	1	...	...	...
	Difference .	...	...	...	−1	+1	+2	+2

APPENDIX I—*contd.*

Table No. 4—*contd.*

Number of mines opened, closed and inspected, during the year 1932—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked under mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines: Opened during the year.	Number of mines: Closed during the year.	Inspections: Number of mines inspected.	Inspections: Number of inspections.
				BARYTES.				
Madras . .	... .	7	...	7	3	...	4	4
	Total of preceding year . .	4	...	4	3	...	1	1
	Difference .	+3	...	+3	...	...	+3	+3
				APATITE.				
Madras . .	Trichinopoly	1	...	1	...	...	...	...
	Total of preceding year . .	1	...	1	...	...	1	1
	Difference .	...	...	...	...	...	—1	—1
				KYANITE.				
Bihar and Orissa.	Singhbhum . . .	1	...	1	...	1	1	2
	Total of preceding year . .	2	...	2	1	1	1	1
	Difference .	—1	...	—1	—1	...	...	+1

APPENDIX I—*contd.*

Table No. 4—*concld.*

Number of mines opened, closed and inspected, during the year 1932—*concld.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines				Inspections.	
			Worked under mechanical power.	Not worked by mechanical power.	Opened during the year.	Closed during the year.	Number of mines inspected	Number of inspections.
			BERYL.					
Rajputana	Ajmer-Merwara	2	...	2	1	...	...	...
	Total of preceding year	1	...	1	1	...	...	...
	Difference	+1	...	+1	...	...	..	...
			FELSPAR.					
Rajputana	Ajmer-Merwara	1	...	1	...	...	...	...
	Total of preceding year	1	...	1	...	...	1	1
	Difference	...	...	...	...	...	—1	—1
			SAND.					
Bengal	Burdwan	...	...	...	...	...	2	2
	Total of preceding year	...	...	...	...	...	...	...
	Difference	...	...	...	...	...	+2	+2
	Grand Total (Metalliferous Mines) for 1932.	766	45	721	298	190	282	357
	Grand Total of preceding year	877	66	811	162	339	484	575
	Difference	—111	—21	—90	+136	—149	—202	—218
	Grand Total (All Minerals) for 1932.	1,281	406	875	348	248	813	2,486
	Grand Total of preceding year	1,417	448	969	207	406	998	2,558
	Difference	—136	—42	—94	+141	—158	—185	—72

APPENDIX I—*contd.*

Table No. 5.

The following table shows the fluctuations in the output of the principal minerals raised from mines classed under the Indian Mines Act. The other minerals raised are slate, magnesite, steatite, clay, fuller's earth, ochre, barytes, apatite, stone, kyanite, gypsum, feldspar and beryl.

Year.	Coal.	Manganese ore.	Mica.	Limestone.	Salt.	Gold.	Copper ore.	Wolfram ore.	Iron ore.	Chromite ore.	Tin ore.	Lead ore.	Silver.
	Tons.	Tons.	Cwts.	Tons.	Tons.	Troy ozs.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Troy ozs.
1923	18,763,967	546,378	31,605	236,161	113,700	1,519	6,550	872	292,033	25,233	1,031	245,925	4,344,042
1924	20,256,034	668,331	40,529	513,333	159,918	3,646	38	739	430,805	27,850	1,627	310,286	5,287,980
1925	19,969,041	710,347	45,383	614,232	125,366	283	...	772½	529,376	21,236	2,307	321,854	4,831,569
1926	20,093,024	857,099	41,451	827,232	122,801	1,053	9,508	751	600,363	16,455	3,568	362,904	5,103,705
1927	21,108,976	878,521	42,081	1,132,235	145,311	2,305	5,010	530	1,068,281	17,086	2,656	450,777	6,004,586
1928	21,515,796	716,626	44,629	1,404,578	145,543	7	18,055	622	1,306,754	17,167	2,777	443,054	7,404,728
1929	22,308,174	750,908	49,437	1,313,647	149,496	30	76,831	1,061	1,436,385	21,054	3,384	464,561	7,280,517
1930	22,683,861	623,678	52,519	1,143,312	147,276	30	123,749	1,509	1,133,893	30,488	3,001	530,119	7,054,206
1931	20,514,597	347,375	46,177	862,226	134,916	..	163,636	969	590,176	14,938	2,552	397,670	5,900,400
1932	18,719,587	88,119	32,643	725,378	150,286	50	175,375	848	673,434	7,886	2,057	372,586	5,908,056

Table No. 6.

The following table shows the amount of coal raised, the average number of persons working daily and the death-rates during the years 1923 to 1932 in respect of coal mines under the Indian Mines Act :—

Year.	Amount of coal raised.	Average number of persons working daily below and above ground.	Number of deaths below and above ground.	Death-rates.	
				Per 1,000,000 tons raised.	Per 1,000 persons working daily below and above ground.
	Tons.				
1923	18,763,967	182,601	332	17·69	1·82
1924	20,256,034	187,088	230	11·35	1·23
1925	19,969,041	173,140	186	9·31	1·07
1926	20,093,024	170,628	171	8·51	1·00
1927	21,108,976	165,218	181	8·57	1·10
1928	21,515,796	164,139	218	10·13	1·33
1929	22,308,174	165,658	194	8·70	1·17
1930	22,683,861	169,001	211	9·30	1·25
1931	20,514,597	158,267	185	9·02	1·17
1932	18,719,587	148,489	151	8·07	1·02

APPENDIX I—*contd.*

Table No. 7.

Aggregate horse power and purpose for use of electric motors installed both on surface and underground at coal mines under the Indian Mines Act.

Coalfield.	Horse power on surface.						Horse power below ground.					Total horse power of motors installed.
	Winding.	Ventilation.	Haulage.	Coal washing or screening.	Miscellaneous.	Total.	Haulage.	Pumping.	Portable machinery.	Miscellaneous.	Total.	
Assam . . .	...	117	265	7	83	472	60	...	...	...	60	532
Bokaro . . .	723	225	250	137	1,077	2,412	315	871	115	310	1,611	4,023
Central Provinces .	...	...	...	..	72	72	65	174	95	2	336	408
Giridih . . .	165	370	...	130	442	1,107	817	3,033	124	2	3,976	5,083
Jharia . . .	3,185	995	2,258	1,047	2,130	9,615	7,834	18,961	2,771	1,461	31,027	40,642
Karanpura . .	...	75	750	95	302	1,223	...	353	62	...	415	1,637
Punjab . . .	...	...	...	...	...	...	...	12	...	...	12	12
Raniganj . . .	2,907	1,390	520	717	424	5,958	6,395	12,286	3,664	81	22,426	28,384
Total .	6,980	3,172	4,043	2,133	4,530	20,858	15,486	35,690	6,831	1,856	59,863	80,721

Table No. 8.

Number of Mines under the Indian Mines Act, where electric power is used, and the aggregate horse power of electric motors installed.

Province.	Minerals worked.						Total horse power of motors installed.
	Coal.		Silver-Lead.		Sundry Minerals.		
	Number of mines.	Horse power.	Number of mines.	Horse power.	Number of mines.	Horse power.	
Assam . . .	4	532	...	...	...	...	532
Bengal . . .	51	24,895	...	...	1	50	24,945
Bihar and Orissa .	65	54,874	...	...	3	1,841	56,715
Bombay . . .	...	...	...	...	...	...	...
Burma . . .	...	...	2	3,817	3	1,299	5,116
Central Provinces .	3	408	..	..	3	313	721
Madras . . .	...	...	...	...	1	160	160
Punjab . . .	1	12	...	...	2	891	903
Total .	124	80,721	2	3,817	13	4,554	89,092

APPENDIX I—*contd.*

Table No. 9.

Number and type of coal-cutting machines at work in Coal Mines under the Indian Mines Act.

Name of machine.	British.	American.	Chain.	Bar.	Percussive.	Power.			Total number of machines.
						Electricity.		Compressed air.	
						A. C.	D. C.		
Goodman . . .	...	70	70	...	...	49	21	...	70
Hardy . . .	10	...	...	..	10	10	.	...	10
Mavor and Coulson .	71	...	29	42	...	67	1	3	71
Sullivan . . .	...	6	6	...	...	6	...	...	6
Total .	81	76	105	42	10	132	22	3	157

Jharia coalfield	52 machines	Total number of square feet undercut 10,017,873.
Raniganj coalfield	95 ,,	
Bokaro coalfield	3 ,,	
Karanpura coalfield	4 ,,	
Central Provinces coalfield	3 ,,	

Table No. 10.

Number of mechanical ventilators in use at Coal Mines under the Indian Mines Act.

Assam.	Bengal.	Bihar and Orissa.	Central Provinces.	Total.
10	27	43	10	90

Table No. 11.

Number of safety lamps in use at Coal Mines under the Indian Mines Act.

Assam.	Baluchistan.	Bengal.	Bihar and Orissa.	Punjab.	Total.
1,839	4	11,490	10,257	3	23,593

1,854 were locked by screws, 7,736 by lead rivets and 14,503 by magnetic means.

APPENDIX I—*concld.*

Table No. 12.

Statement of explosives used during the year 1932 at mines under the Indian Mines Act.

Name of explosives.	Quantity of explosives used, in lb., in :—								
	Coal mines.	Mica mines.	Manganese mines.	Lead ore mines.	Tin and Wolfram ore mines.	Limestone mines.	Stone mines.	Other mines.	Total.
Dynamite . . .	42,652	46,912	4,221	...	1,694	2,239	3,603	16,572	117,893
Gelignite . . .	28,874	16,904	7,063	130,956	1,757	2,434	16,846	309,702	514,536
Monobel . . .	15,046	...	...	...	...	...	...	...	15,046
Stonobel . . .	94,912	...	...	...	...	...	...	...	94,912
Dynobel . . .	8,225	...	...	...	...	...	...	...	8,225
Bobbinite . . .	1,462	...	...	...	...	...	...	...	1,462
Samsonite . . .	50	...	...	...	...	...	...	...	50
Rockite . . .	1,721	...	...	...	...	...	...	...	1,721
Pranoda . . .	5	...	...	...	...	...	...	...	5
Liquid Oxygen . .	44,699	...	...	...	...	...	...	1,030	45,729
Gunpowder . . .	2,290,142	775	4,445	...	...	133,690	90,984	109,553	2,629,589
Picric Powder . .	...	...	...	...	...	...	978	...	978
Number of detonators used.	590,758	493,513	72,455	236,927	46,654	21,120	84,463	411,363	1,957,253

APPENDIX II.

ACCIDENTS IN MINES.

Table No. 1.

Fatal Accidents during the year 1932.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
		EXPLOSIONS AND IGNITIONS OF FIRE-DAMP—(*7 deaths*).				
1	9th April, 5-30 A.M.	Methani mine, Sitarampur P. O., Bengal.	Aldih Coal Co., Ld.	Topsi Singh, (*m.*), 38, *Machineman.* Panchram Nai, (*m.*), 36; Hiralal Satram, (*m.*), 30, *Loaders.* Jagadish Lall, (*m.*), 34, *Explosive carrier.* Lakshmi Prasad, (*m.*), 26, *Labourer.*	Coal .	An explosion of fire-damp occurred in an underground gallery and the flame extended for a distance of 300 feet. Seven persons were severely injured and five of them subsequently died. Inspection and inquiry made.
2	13th June, 11 A.M.	Loyabad mine, Bansjora P. O., Bihar and Orissa.	Burrakur Coal Co., Ld.	Bhatu Kole, (*m.*), 36, *Coal-cutter.*	Coal .	In an open light mine and in a seam in which inflammable gas had never been found, a miner ignited a small accumulation of gas at the face of a gallery rising at 1 in 8. He was severely burned and died five hours later. Inspection and inquiry made.
3	18th June, 9 A.M.	Sitanala mine, Bhojudih P. O., Bihar and Orissa.	Bengal Coke and Coal Products, Ld.	Rohini Kora, (*m.*), 34, *Coal-cutter.*	Coal .	In a mine in which inflammable gas had never been found, a miner, carrying an open light, entered a narrow gallery driven in advance of the main gallery and ignited a small accumulation of fire-damp. He received burns from which he subsequently died. Inspection and inquiry made.

FALLS OF ROOF AND SIDES.

(a) Falls of roof—(*52 deaths*).

4	2nd January, 4-30 A.M.	Phularitand mine, Katrasgarh P. O., Bihar and Orissa.	Chandanmull Indrakumar.	Jodha Kurmi, (*m*), 32, *Coal-carrier.*	Coal	After blasting operations, the roof in a gallery was found to be unsound and the gallery was fenced. Two loaders passed under the fence and entered the gallery, and while they were there a mass of stone, 12′ × 5′ × 6″, fell on them from between two "slips" at a height of 15 feet. One of them was killed and the other was seriously injured. Inspection and inquiry made.
5	6th January, 11 P.M.	Dishergarh West mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ld.	Fagoo Jeswar, (*m.*), 48, *Timberman.*	Coal	While clearing a fall of roof stone a miner was killed and two others were severely injured by a slab of roof stone, 5′ × 3′ × 3″, which fell unexpectedly from a height of 7 feet Inspection and inquiry made.
6	29th January, 5-30 A.M.	Bhuggutdih mine, Jharia P. O., Bihar and Orissa.	Bengal-Nagpur Coal Co., Ld.	Jagru Pasi, (*m*,), 35, *Coal cutter.*	Coal	A miner employed in extracting a pillar of coal was sitting near by in a gallery 10 feet high, when a piece of stone, 1′·6″ × 1′ × 2″, fell from the roof and struck him on the head. He was fatally injured. Inspection and inquiry made.
7	3rd February, 4-30 A.M.	Mundalpur mine, Nandi P. O., Bengal.	Mundalpur Coal Co., Ld.	Jitan Manjhi, (*m.*), 30, *Coal-cutter.*	Coal	While a miner was drilling a shot-hole in a gallery a mass of roof stone, 14′ × 2′ × 2″, fell unexpectedly from a height of 8 feet. He was fatally injured. Inspection and inquiry made.
8	13th February, 5-30 A.M.	Pure Pipratand mine, Mohuda P O., Bihar and Orissa.	Bhurangya Coal Co.	Dinu Moah, (*m.*), 40, *Sirdar.*	Coal	Deceased was withdrawing a prop in a depillaring area of a mine, when he was struck by a mass of stone 12′ × 2′-6′ × 1′, which fell from the roof, 5 feet above. He sustained injuries to which he succumbed half an hour later. Inspection and inquiry made.
9	18th February, 8-30 A.M.	Serampur mine, Giridih P. O., Bihar and Orissa.	East Indian Railway.	Sona Manjhi, (*m*), 24, *Coal-cutter.*	Coal	Deceased was loading coal in a place where a pillar of coal was being extracted when a piece of roof stone, 3′ × 1′ × 6″, fell from a height of 14 feet. He was struck by the stone and sustained injuries which proved fatal. Inspection and inquiry made.
10	8th March, 2-30 P M.	Kurhurbaree (Joktiabad) mine, Giridih P O., Bihar and Orissa.	East Indian Railway.	Peru Kalal, (*m.*), 48, *Coal-cutter.*	Coal	A miner was dressing roof coal in a gallery, 8 feet high, when about one ton of coal fell from the roof. He was struck by the coal and fatally injured. Inspection and inquiry made.
11	18th March, 10-30 A M.	Lodna mine, Jharia P O., Bihar and Orissa.	Lodna Colliery Co. (1920), Ld.	Bhama Mullick, (*m*), 52, *Coal-cutter.*	Coal	While a miner was at work in a gallery, 25 feet high, where roof coal had recently been blasted, a mass of stone, 10′ × 8′ × 9″, fell from the roof. He was struck and killed instantly. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents during the year 1932—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*a*) **Falls of roof**—*contd.*			
12	30th March, 1 P.M.	Serampur mine, Giridih P. O., Bihar and Orissa.	East Indian Railway.	Somri Dosadhin, (*f*), 28, *Coal-carrier*.	Coal .	A pillar of coal was being extracted when a sudden weight in the goaf caused a mass of coal weighing about 5 tons to fall from the roof of a gallery 8 feet high. A woman was struck by the coal and killed instantly. Inspection and inquiry made.
13	2nd April, 2 P.M.	Sendra Bansjora mine, Bansjora P. O., Bihar and Orissa.	Sendra Bansjora Colliery Co.	Balkia Chamar, (*m.*), 36, *Coal-cutter*. Bhundia Chamarin, (*f.*), 26, *Coal-loader*.	Coal .	While a miner was illegally cutting roof coal from the broken edge of a fenced off goaf, a mass of stone, 2′ × 1′ 6″ × 1′ 6″, fell from the roof. He was struck by the stone and fatally injured. The stone rolled down a steep slope of goaf debris and killed his wife, who was loading coal for him at the foot of the slope. Inspection and inquiry made.
14	4th April, 3 P.M.	Phularitand mine, Katrasgarh P. O., Bihar and Orissa.	Chandanmull Indrakumar.	Bhayaram Gond, (*m.*), 36, *Coal-cutter*.	Coal .	The extraction of a pillar of coal in a seam, 15 feet thick, had been commenced from a level gallery. A miner engaged in cutting coal from the pillar was struck and killed instantly by a mass of stone, 25′ × 6′ × 9″, which fell from the roof. If the roof had been adequately supported, the accident would have been avoided. Inspection and inquiry made.
15	6th April, 1-45 P.M.	Newton Chickli mine, Parasia P. O., Central Provinces.	Newton Chickli Collieries, Ld.	Ramoutar, (*m.*), 30, *Coal-cutter*.	Coal .	A miner was fatally injured by a prop which was knocked out when a mass of roof stone, 12′ × 6′ × 3′, fell within a fenced-off area next to the goaf. Inspection and inquiry made.
16	8th April, 5-30 A.M.	Ledo Valley mine, Ledo P. O., Assam.	Assam Railways and Trading Co., Ld.	Laloo Lodh, (*m.*), 28, *Timberman*.	Coal .	In the course of erecting girders to support the roof on a main haulage road, deceased, who was clearing fallen coal was fatally injured by a piece of coal weighing 5 cwt. which fell upon him from a height of 11 feet. He died eight days later. Inspection and inquiry made.
17	13th April, 12 A.M.	Toposi mine, Toposi P. O., Bengal.	Bansra Coal Co., Ld.	Bhagirath Chamar, (*m.*), 30, *Loader*.	Coal .	In the depillaring of a seam of coal, 11 feet thick, a mass of roof-stone, 34′ × 9′ × 2′ 6″, broke down its supports and fell killing a miner instantly. Inspection and inquiry made.

18	13th April, 5 P.M.	Kurhurbaree mine, Giridih P. O., Bihar and Orissa.	East Indian Railway.	Sita Rai, (*m.*), 35; Amrit Rai (*m.*), 30, *Coal-cutters.*	Coal	In a depillaring area where a number of persons were at work, a mass of coal weighing about 100 tons fell from the roof of a gallery inflicting fatal injuries on two miners. Another miner was seriously injured. The fall was said to have been preceded by an unusually heavy "bump". Inspection and inquiry made.
19	26th April, 3-30 P.M.	Chinchuria mine, Asansol P. O., Bengal.	New Beerbhoom Coal C., Ltd.	Budhan Gord. (*m.*), 35, *Loader.*	Coal	While loading coal in a gallery, a miner was struck by a lenticular mass of roof-stone, 17′ × 3′ × 1′, which fell unexpectedly from a height of 12 feet. He was killed instantly. Inspection and inquiry made.
20	29th April, 10 A.M.	New Pipratand mine, Mohuda P. O., Bihar and Orissa.	Rai Bahadur P. Mukherjee.	Budhu Muchi, (*m.*), 22, *Labourer.*	Coal	While props were being set in a gallery 17 feet wide and 5 feet high adjacent to a depillaring area a mass of coal and shale, 20′ × 10′ × 1′, fell from the roof and dislodged 8 props. A miner at work at the edge of the fall was struck on the head by a falling prop and sustained injuries from which he died eight hours later. Inspection and inquiry made.
21	30th April, 9 A.M.	Bansdeopur mine Bansjora P. O., Bihar and Orissa.	Bansdeopur Coal Co., Ltd.	Hiramon Dosadh, (*m.*), 36; Jamuna Benia, (*m.*), 27, *Labourers.*	Coal	While props were being withdrawn from a depillared area, 36′ × 30′, in a seam 10 feet thick and dipping at 1 in 3½, the roof collapsed. Two men who were assisting to remove the props were buried in the goaf. Inspection and inquiry made.
22	2nd May, 11 P.M.	Ledo Valley mine, Ledo P. O., Assam.	Assam Railways and Trading Co., Ltd.	Abdul Hamid, (*m.*), 28, *Coal-filler.*	Coal	While a miner was at work in an "opening" or chamber, 50 feet square and 20 feet high, a piece of coal weighing 5 cwt. fell upon him from the roof. He was fatally injured. Inspection and inquiry made.
23	14th May, 11-30 P.M.	Sendra mine, Bansjora P. O., Bihar and Orissa.	Sendra Coal Co., Ltd.	Garu Bauri, (*m.*), 35, *Coal-cutter.*	Coal	On a tram line level, 20 feet in height, a mass of roof stone 15′ × 15′ × 3″, fell unexpectedly while a number of miners were in the vicinity. One of them was struck by the stone and injured so severely that he subsequently died in hospital. Inspection and inquiry made.
24	27th May, 5 P. M.	Jamadoba mine, Jealgora P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ltd.	Jhile Bilaspuri, (*m.*), 26, *Coal-cutter.*	Coal	In a depillaring area, a mass of roof stone, 20′ × 10′ × 1′, fell and displaced three props, one of which struck deceased and inflicted fatal injuries. Inspection and inquiry made.
25	25th June, 4-10 P M.	Central Kurkend mine, Kusunda P. O., Bihar and Orissa.	Central Kurkend Coal Co., Ltd.	Jatali Bauri, (*m.*), 37, *Coal-cutter.*	Coal	In a seam, 26 feet thick, a miner was loading a basket with coal when a piece of roof coal, 3′ 6″ × 1′ 6″ × 1′ 6″, fell from a height of nineteen feet and struck him. He sustained serious injuries and died eighteen hours later. Inspection and inquiry made.
26	30th June, 3-15 A.M.	Sitalpur mine, Dishergarh P. O., Bengal.	Bengal Coal Co., Ltd.	Barati Dhibar, (*m.*) 38, *Coal-cutter.*	Coal	Two miners left their working place and went into a fenced area to rob the corner of a pillar. A mass of coal weighing 15 to 20 tons fell from the roof and sides and one of the men was killed and the other seriously injured. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents during the year 1932—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*a*) Falls of roof—*contd.*			
27	1st July, 5 A.M.	Mudidih mine, Sijua P. O., Bihar and Orissa.	Burrakur Coal Co., Ld.	Balu Koiri, (*m.*), 18, *Loader.*	Coal	While coal was being dressed from the roof of a gallery after blasting deceased entered the place for the purpose of loading coal. He was struck and fatally injured by a block of coal, 2′ × 1′ 6″ × 2′6″, which fell from a height of 12 feet. Inspection and inquiry made.
28	6th July, 12-30 A.M	Jamuria mine, Charanpur P. O., Bengal.	Equitable Coal Co., Ld.	Natoo Meah, (*m.*), 31, *Coal-cutter.* Mitto Meah, (*m.*), 22, *Loader.*	Coal	A gang of miners went through a fence and entered a goaf to rob coal from a "stook" when a wedge-shaped mass of roof, 35′ × 14′ × 5′, fell from a height of 12 feet. Two of them were killed instantly. Inspection and inquiry made.
29	6th July, 1-30 P.M.	Damoderpur mine, Nandi P. O., Bengal.	Bengal Coal Co., Ld.	Ronghi Passi, (*m.*), 45; Chotto Manjhi, (*m.*), 32, *Coal-cutters.*	Coal	Two miners were killed by a mass of roof coal, 13′ × 7′ × 2′—6″, which fell unexpectedly in a gallery 6 feet high. The fall was bounded on three sides by "slips" and on the fourth by an open cleat. Inspection and inquiry made.
30	8th July, 12 A.M.	Mosaboni mine, Mosaboni P. O., Bihar and Orissa.	Indian Copper Corporation, Ld.	Kutiappan, (*m.*), 40; Chhinaswami, (*m.*), 25, *Timbermen.*	Copper ore.	The deceased were engaged in erecting props in a stope, in order to support the roof which was unsound, when a mass of stone, weighing about 50 tons, fell from the roof. One man was killed instantly and the other received injuries which proved fatal. Inspection and inquiry made.
31	17th August, 12-30 P.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co. (1920), Ld.	Budhan Dosadh, (*m.*), 42, *Coal-cutter.*	Coal	While shifting a ladder in a gallery, 28 feet high, for the purpose of drilling a shot-hole in the roof coal, a miner was hit on the finger by a piece of coal dislodged by the ladder and received a small lacerated wound. He died of tetanus twelve days later. Inspection and inquiry made.
32	20th August, 2-30 P.M.	Barmondia mine, Sitarampur P. O., Bengal.	New Beerbhoom Coal Co., Ld.	Kandani Mejhian, (*f.*), 60, *Loader.*	Coal	While deceased was loading coal in a gallery in which roof coal had recently been blasted, she was fatally struck by a mass of roof coal, weighing about 7-cwt. that fell unexpectedly from a height of 10 feet. Inspection and inquiry made.

33	10th September, 10 A.M.	Mosaboni mine, Mosaboni P. O., Bihar and Orissa.	Indian Copper Corporation, Ld.	Kali Gurung, (*m.*), 30, *Labourer.*	Copper ore.	While a miner was at work in a stope, 7 feet high, a slab of schist, 6′ × 4′ × 3″, fell on him from the hanging wall. He received fatal injuries. Inspection and inquiry made.
34	17th September, 3 P.M.	Dobary mine, Jharia P. O., Bihar and Orissa.	R. N. Bagchi and Bros., Dobary Colliery, Ld.	Bishahu, (*m.*), 26, *Coal-cutter* Bhatni Bhowrin, (*f.*), 23, *Loader.*	Coal	While three persons were removing fallen coal from a fenced-off area, a mass of stone about 40 feet square and 12 inches thick, fell from the roof from a height of 25 feet. Two persons were killed and completely buried by the stone and one person was seriously injured. Inspection and inquiry made.
35	27th September, 6 A.M.	Toposi mine, Toposi P. O., Bengal.	Bansra Coal Co., Ld.	Puran Mahato, (*m.*), 41, *Labourer.*	Coal	Three propping labourers were re-setting some props which had been knocked out through blasting when a mass of roof stone, 6′ × 6′ × 3″, fell from a height of 10 feet, and fatally injured one of them. Inspection and inquiry made.
36	28th September, 12-30 P.M.	Majhlitand mine, Katrasgarh P. O., Bihar and Orissa.	Chandanmull Indrakumar.	Bhushan Mahato, (*m.*), 31, *Coal-cutter.*	Coal	A miner engaged in cutting roof coal in a gallery, 7½ feet high, was struck and killed instantly by a mass of coal. 15′ × 5′ × 1′6″, which fell from the roof. Inspection and inquiry made.
37	14th October, 4 A.M.	Viceroy mine, Nandi P. O., Bengal.	Minto Coal Co., Ld.	Lokhon Kole, (*m.*), 26, *Coal-cutter.*	Coal	While resting near his working place in a depillaring area, a miner was struck and fatally injured by a piece of roof stone, 2′ × 1′ 6″ × 9″, which fell from a height of 5 feet. Inspection and inquiry made.
38	18th October, 10 A.M.	Majri mine, Warora P. O., Central Provinces.	Jamai-Majri Coal Co., Ld.	Yankati Kunvi, (*m.*), 35, *Coal-cutter.*	Coal	While working in a gallery, a miner was fatally injured by a mass of roof stone, 2′ × 1′ × 3″ thick, which fell on him from a height of 7 feet. Inspection and inquiry made.
39	19th October, 5-30 A.M.	Sripur mine, Kalipahari P. O., Bengal.	Lodna Colliery Co. (1920), Ld.	Amir Roy, (*m.*), 35, *Labourer.*	Coal	While five persons were erecting props in a goafed area a "bump" took place and about 60 tons of roof coal fell at the entrance to the goaf. Deceased tried to run out but was fatally injured by the falling coal. The roof coal was supported on cogs but owing to a "slip" the coal fell over them. Inspection and inquiry made.
40	20th October, 5 A.M.	Ena mine, Jharia P. O., Bihar and Orissa.	North-West Coal Co., Ld.	Mahindi Manjhi, (*m.*), 37, *Coal-cutter.*	Coal	While sitting in a depillaring area, a miner was struck by a band of stone, about 2′ × 2′ × ½″, which fell from a height of 12 feet. He received slight injuries and peritonitis supervening, died fourteen hours later. Inspection and inquiry made.
41	20th October, 5-30 P.M.	Serampur mine, Giridih P. O., Bihar and Orissa.	East Indian Railway.	Khupi Chamar, (*m.*), 34, *Loader.*	Coal	While a coal-loader was filling a basket with coal in a gallery 9½ feet high a mass of coal and stone, 15′ × 2′ × 9″, fell from "slips" in the roof. He was struck and fatally injured. If the roof where the "slips" occurred had been supported the accident would have been avoided. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents during the year 1932—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*a*) **Falls of roofs**—*concld.*			
42	3rd November, 1 P.M.	Ledo Valley West mine, Margherita P.O., Assam.	Assam Railways and Trading Co., Ltd.	Adina Makrani, (*m.*), 50, *Coal-cutter.*	Coal	While working in an 'opening' a miner was fatally injured by a mass of coal, 4' × 3' × 6" thick which fell from a height of 7 feet. Inspection and inquiry made.
43	4th November, 1 P.M.	Madhuban mine, Jharia P. O., Bihar and Orissa.	Wali Ram Taneja & Co.	Durga Kora, (*m.*), 57, *Loader.*	Coal	A miner was at work in a gallery 9 feet high, when a mass of stone, 6' × 5' × 7", fell from concealed 'slips' in the roof. He was fatally injured. Inspection and inquiry made.
44	6th December, 3 A.M.	Kustore mine, Kusunda P. O., Bihar and Orissa.	Raneegunge Coal Association, Ltd.	Bhikoo Bhakta, (*m*), 28, *Loader.*	Coal	While passing along a level on his way to his working place, a loader was struck and fatally injured by a piece of roof-coal and stone which fell from a height of 13 feet. Inspection and inquiry made.
45	14th December, 9-45 A.M.	Madhuban (Lodna) Nos. 6 and 7 pits mine, Jharia P. O., Bihar and Orissa.	Waliram Taneja & Co.	Kali Charan Rajwar, (*m.*), 28, *Coal-cutter.*	Coal	A miner was cutting floor coal in a gallery in which he had not been authorised to work, when a mass of stone, 6' × 4'6" × 9", fell from the roof and killed him instantly. Inspection and inquiry made.
46	16th December, 5 P M	Bengal Jharia mine, Jharia P. O., Bihar and Orissa.	Bengal Jharia Colliery Co.	Dinu Deswali. (*m*), 45, *Coal-cutter.*	Coal	While a miner was at work in a gallery, 8 feet high, a mass of coal, 10' × 3' × 1', fell from "slips" in the roof and killed him instantly. Inspection and inquiry made.
47	23rd December, 1 P.M.	Kankanee mine, Bansjora P. O., Bihar and Orissa.	Eastern Coal Co., Ltd.	Bodhiram Chamar, (*m.*, 35; Indal Chamar, (*m.*), 30, *Coal-cutter.*	Coal	While two miners were working in a gallery, 7 feet high, a mass of stone, 10' × 8' × 1', fell from the roof and killed them instantly. By robbing coal from the side of the gallery and exposing a "slip" running parallel to the side they caused the fall of roof. Inspection and inquiry made.
			(*b*) **Falls of side** (*53 deaths*).			
48	5th January, 12-45 P.M	Amlabad mine, Jealgora P. O., Bihar and Orissa.	Eastern Coal Co., Ltd.	Indoo Koiri, (*m.*), 20, *Loader.*	Coal	While a miner was filling a basket with coal which had been illegally cut by his fellow workmen from the side of a pillar, a mass of overhanging coal, 15' × 8' × 1'3", fell from the side He was crushed by the falling coal and sustained injuries from which he died eight hours later. Inspection and inquiry made.

49	5th January, 3-30 P.M.	Newton Chickli mine, Parasia P. O., Central Provinces.	Newton Chickli, Collieries, Ld.	Thakur Shri Datt Singh, (*m*), 30, *Sirdar*.	Coal .	While coal was being loaded in an area from which pillars of coal were being extracted, some coal falling from the side dislodged a prop 8 feet long. A sirdar who was supervising the loading, was struck on the head by the prop and fatally injured. Inspection and inquiry made.
50	6th January, 5 P.M.	Bhulanbararee mine, Pathardih P O., Bihar and Orissa.	Bhulanbararee Coal Co., Ld.	Jethoo Chamar, (*m*), 48, *Loader*.	Coal .	In a depillaring area the splitting of a pillar 27 feet high was in progress when a heavy "bump" in an adjacent goaf ca sed a mass of coal, weighing about 8 tons, to f ll from the side. Two coal loaders were injured and one of them died ten minutes later. Inspection and inquiry made.
51	19th January, 11-30 A.M.	Tarki mine, Tarki P. O., Punjab.	Government of Punjab (Public Works Department).	Bagh Ali, (*m*), 35, *Miner*.	Limestone	While dislodging a boulder about 3′ × 3′ × 3′, from the slope of a quarry face, a miner was crushed beneath it and received fatal injuries. Inspection and inquiry made.
52	22nd January, 6 P.M.	Bawdwin mine, Namtu P. O., Burma.	Burma Corporation, Ld.	Balbahadur Thapa, (*m.*), 29, *Miner*.	Silver-lead-zinc.	While two miners were at work in an ore chute, a piece of ore, weighing approximately 5 lb., fell from the side at a point 15 feet above; it struck one of the miners, fatally injuring him. Inspection and inquiry made.
53	23rd January, 1 P.M.	Damodarpur mine, Nandi P. O., Bengal.	Bengal Coal Co., Ld.	Tilak Chamar, (*m.*), 16, *Loader*.	Coal .	After a shot had been fired in a depillaring area, several persons entered the place before it had been examined. About 4 tons of coal fell from the working side of a pillar, knocking out several props, one of which struck a miner and killed him. Inspection and inquiry made.
54	1st February, 7 P.M.	Amlabad mine, Jealgora P O., Bihar and Orissa.	Eastern Coal Co., Ld.	Moni Chamar, (*m.*), 23. *Loader*.	Coal .	While deceased was at work in a gallery 9 feet in height, a mass of coal, weighing about 1 ton fell from the side. He was struck by the coal and died shortly afterwards. Inspection and inquiry made.
55	15th February, 7 A.M.	Sahebgunge (Block No. 2) mine, Sakrigali P. O., Bihar and Orissa.	J. N. Mukherjee .	Bali Singh, (*m*), 40, *Quarryman*.	Stone .	While at work at the foot of a quarry "face," 15 feet high, a quarryman was fatally injured by a fall of loose overburden. Inspection and inquiry made.
56	16th February, 9 P.M.	Hsaikhao mine, Namtu P. O , Burma.	Burma Corporation, Ld.	Lao Shi, (*m.*), 25; Lao Yoe, (*m.*), 18, *Labourer*.	Limestone	Contrary to orders a gang of labourers returned to a quarry after dark and entered an unsafe area which had been partially fenced off. While collecting some stone which had been previously blasted down, a piece of stone, 9′ × 7′ × 5′, fell from the side at a height of 50 feet. One man was killed instantly and another was fatally injured. Inspection and inquiry made
57	1st March, 6-30 P.M.	Bhulanbararee mine, Pathardih P.O., Bihar and Orissa.	Bhulanbararee Coal Co., Ld.	Karoona Mejhian, (*f.*), 34, *Coal-carrier*.	Coal .	Due to roof weight in an adjacent depillaring area coal had fallen from the sides of a haul ge ro d While t is coal was being loaded a mass of coal 9′ × 2′ × 1′6″, fell from the side. A woman engaged in carrying the coal was fatally injured. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents during the year 1932—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*b*) Falls of side (53 deaths)—*contd.*			
58	13th March, 4 A.M.	Upper Kajora mine, Kajoragram P.O. Bengal.	C. Bhawsinga .	Bama Kora, (*m.*), 45 *Coal-cutter.*	Coal .	Deceased was fatally injured by being struck by a piece of coal which fell on him in a gallery 18 feet high. Inspection and inquiry made.
59	24th March, 3 A.M.	Ningah (Nos. 4 & 5 pits, Sripore) mine, Kalipahari P.O., Bengal.	Lodna Colliery Co., (1920), Ld.	Raghuram Kole (*m.*), 40, *Loader.*	Coal .	In a machine cut gallery 6 feet high a miner was dressing down coal when a mass of roof coal fell and fatally injured him. Inspection and inquiry made.
60	25th March, 10 P.M.	Bhurgutdih mine. Jharia P.O., Bihar and Orissa.	Bengal-Nagpur Coal Co., Ld.	Lilu Manjhi (*m.*), 26. *Coal-cutter.*	Coal .	While a miner was at work in a depillaring area, a mass of coal weighing about 1 ton fell off a "slip" in the side of a pillar and killed him instantly. The accident would have been avoided had a more careful inspection been made by the supervising staff. Inspection and inquiry made.
61	29th March, 5 A.M.	Kustore mine Kusunda P.O., Bihar and Orissa,	Raneegunge Coal Association, Ld.	Gulthan Dosadh (*m.*), 35, *Coal-carrier.*	Coal .	While loading coal near a place where pillars of coal were being extracted a miner was struck by a mass of coal weighing 160-lb., which fell unexpectedly from the side of a pillar at a height of 9 feet. He received injuries from which he subsequently died. Inspection and inquiry made.
62	30th March, 8 P.M.	Serampur mine, Giridih P.O., Bihar and Orissa.	East Indian Railway.	Gafoor Meah. (*m.*). 35, *Coal-carrier.*	Coal .	In a depillaring district of a seam 21 feet thick, a number of miners were engaged in loading coal when a sudden 'weight' in the goaf caused a mass of coal weighing about 5 tons to fall from the corner of a pillar. One of the miners was killed instantly and another sustained serious injuries. Inspection and inquiry made.
63	5th April, 3-15 P.M.	Kustore mine. Kusunda P.O., Bihar and Orissa.	Raneegunge Coal Association, Ld.	Bahro Singh. (*m.*). 30, *Coal-cutter.*	Coal .	While a miner was dressing overhanging coal from the side of a gallery, 9 feet high, a mass of coal, 4′ × 2′6″ × 2′ fell from the side. He was struck and killed instantly by the falling coal. Inspection and inquiry made.
64	9th April, 1 P.M.	Kustore mine, Kusunda P.O., Bihar and Orissa.	Raneegunge Coal Association, Ld.	Ghujar Roy. (*m.*), 28 *Coal-cutter.*	Coal .	After firing a shot in a pillar of coal which was being extracted a miner was levering loose coal off the side. A mass of coal, weighing about 5-cwt, fell towards him and he was struck and injured so severely that he died fifteen days later. Inspection and inquiry made.

65	21st April, 4-30 A.M.	Lodna mine, Jharia P.O., Bihar and Orissa.	Lodna Colliery Co. (1920), Ld.	Rabathi Rajawarin, (*f.*), 28, *Coal-carrier.*	Coal .	In a depillaring area some 15 tons of coal fell from the corner of a pillar 24 feet in height. A woman was struck by the coal and fatally injured. Inspection and inquiry made.
66	26th April, 5-30 P.M.	Kutcheedhana mine, Saoner P.O. Central Provinces.	Indian Manganese Co., Ld.	Chandria Mahar, (*m.*), 30, Daolat Mahar, (*m.*), 32, *Miners.*	Manganese.	While working at the bottom of an open excavation, 17 feet deep, two miners were entombed and suffocated by a large part of an old spoil heap which unexpectedly slipped into the excavation. Inspection and inquiry made.
67	27th April, 12 A.M.	Kustore mine, Kusunda P. O., Bihar and Orissa.	Raneegunge Coal Association, Ld.	Budhan Singh, (*m.*), 26, *Coal-cutter,*	Coal .	While a miner was resting in the centre of a place from which fallen coal was being loaded; a mass of coal, weighing about 5 tons, fell from the side of a pillar and dislodged a prop, 16 feet long. The prop struck him on the head killing him instantly. Inspection and inquiry made.
68	30th April, 5 A.M.	Standard (Benahir section) colliery, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Lochan Pashi, (*m.*), 48, *Miner.*	Coal .	While working in a depillaring area, deceased was struck by a quantity of coal, weighing about 15 cwt. which fell unexpectedly from the side of a pillar at a height of 25 feet. He sustained injuries to which he succumbed within a few hours. Inspection and inquiry made.
69	6th May, 5-30 P.M.	Kurhurbaree mine, Giridih P. O., Bihar and Orissa.	East Indian Railway.	Mohini Dosadhin, (*f.*), 34, *Coal-carrier.*	Coal .	While a woman was loading coal near the face of a 'split', 6 feet high and 8 feet wide, which was being driven through a pillar in a depillaring area, a "bump" caused about 2 tons of coal to fall from the face. She was struck and killed by the falling coal. Inspection and inquiry made.
70	16th May, 9-45 A.M.	Chowrassie mine, Dishergarh P. O., Bihar and Orissa.	Equitable Coal Co., Ld.	Mata Manjhi, (*m.*), 33, *Coal-cutter.*	Coal .	While at work in a gallery a miner was fatally injured by a mass of coal, 10' × 5' × 2', which fell from the side of a pillar. Inspection and inquiry made.
71	18th May, 5 P.M.	South Bulliari mine, Kusunda P O., Bihar and Orissa.	East Indian Coal Co., Ld.	Jharu Chamar, (*m.*), 30, *Coal-cutter.*	Coal .	While a miner was cutting coal from the side of a gallery, 18 feet high, at a point where a new gallery was being commenced, a mass of coal, weighing about 1 ton, fell from between two concealed 'slips' in the side. He was struck by the falling coal and killed instantly. Inspection and inquiry made.
72	21st May, 1-15 P.M.	Parbelia mine, Dishergarh P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Jadu Dosadh, (*m.*), 25, *Coal-carrier.*	Coal .	A coal-carrier was fatally injured by a mass of side coal which fell unexpectedly from the side of a travelling road 8 feet high. Inspection and inquiry made.
73	22nd May, 3-15 A.M.	Sendra mine, Bansjora P. O., Bihar and Orissa.	Sendra Coal Co., Ld.	Gura Dosadh, (*m.*), 28, *Coal-cutter.*	Coal .	Two miners took down two fences and went into a prohibited area to obtain fallen coal. While they were loading a basket, a mass of coal, weighing about 5 tons, fell from the side of a pillar, killing one man instantly and seriously injuring the other. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents during the year 1932—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*b*) Falls of side—*contd.*			
74	28th May, 3-45 P.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co. (1920), Ld.	Pryag Kora, (*m.*), 30, *Coal-cutter.*	Coal .	While a miner was dressing side coal from near the top of a pillar, 24 feet high, a mass of coal falling from the side struck the foot of his ladder and caused him to fall to the floor. Immediately afterwards another fall of about 5 tons of coal occured and he was killed instantly. Inspection and inquiry made.
75	18th June, 2 A.M.	Saltore mine, Dishergarh P. O., Bihar and Orissa.	Burrakur Coal Co., Ld.	Lal Chand Hazam, (*m.*), 38, *Coal-cutter.*	Coal .	In a seam 15 feet thick a miner was struck by a fall of side from a pillar from which he was robbing coal. He received injuries which caused death within a few days. Inspection and inquiry made.
76	22nd June, 3 P.M.	Pathlaiya mine, Domchanch P. O., Bihar and Orissa.	Indian Mica Supply Co., Ld.	Sanichar Mussar, (*m.*), 55, *Labourer.*	Mica .	Five miners on arrival at a mine entered an old opencast working, in order to shelter from the sun, under the overhanging overburden. About an hour later while some of the miners were asleep, a mass of earth and stone, said to weigh about 1 ton, fell from a height of 8 feet and killed one of them. Inspection and inquiry made.
77	1st July, 4-30 P.M.	Chinchuria mine, Asansol P. O., Bengal.	New Beerbhoom Coal Co., Ld.	Makhan Bauri, (*m.*). 50, *Coal-cutter.*	Coal .	While a miner was loading coal in a depillaring area, a wedge-shaped mass of coal weighing about 15 cwt. fell from the side of pillar, at a height of 7 feet, exposing a hidden slip. He was struck and fatally injured. Inspection and inquiry made.
78	3rd July, 2 A.M.	Standard (Jharia Khas section) mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Gajoo Bhuiya, (*a.*), 28, *Loader.*	Coal .	In a seam, 26 feet thick, a mass of coal fell from the side of a pillar under extraction and striking the foot of a prop, dislodged it. A coal loader was struck by the falling prop and fatally injured. Inspection and inquiry made.
79	10th July, Between 12 noon and 8 P.M.	Hermyingyi mine, Hermyingyi P. O., Burma.	Consolidated Tin Mines of Burma, Ld.	Wan Hoi, (*m.*), 29, *Tribute miner.*	Tin and wolfram.	A "tribute" miner entered a disused adit and while at work a mass of decomposed granite fell from the side and killed him. Inspection and inquiry made.

80	14th July, 3 P.M.	Kustore mine, Kusunda P. O., Bihar and Orissa.	Raneegunge Coal Association, Ld.	Hari Ram Lohar, (*m.*), 29, *Coal-cutter.*	Coal	On a machine cut face 8 feet high a miner was charging a shot-hole when a mass of some 3 tons of coal fell unexpectedly from the face, killing him instantly. Inspection and inquiry made.
81	21st July, 11 A.M.	Sudih mine, Sitarampur P. O., Bengal.	Morarji Mulraj & Co.	Dami Corin, (*f.*), 32, *Loader.*	Coal	While a woman was sitting near the corner of a pillar in a seam seven feet thick, she was struck and fatally injured by a piece of coal weighing about ½ cwt, which fell from the side of the pillar near the roof. Inspection and inquiry made.
82	9th August, 1-30 P.M.	Ghorawari mine, Junnordeo P. O., Central Provinces.	Hirdagarh Collieries, Ld.	Jugra Mobasi, (*m.*), 40, *Coal-cutter.*	Coal	While deceased was robbing the corner of a pillar, a mass of coal, 6′ × 6′ × 3′9″, broke off an unexposed "slip" at a height of 6 feet. Deceased was buried in the fall and sustained fatal injuries. Inspection and inquiry made.
83	25th August, 2 A.M.	Standard (Jharia Khas section) mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Sewraj Singh, (*m.*), 38, *Loader.*	Coal	A mass of coal, 3′ 6″ × 2′ 6″ × 1′ 3″, fell from the corner of a tall pillar adjacent to a working place, and struck a coal loader killing him instantly. Inspection and inquiry made.
84	24th September, 2-30 P.M.	Dhemo Main mine, Sitarampur P. O., Bengal.	Dhemo Main Collieries, Ld.	Pilkadas Satnami, (*m.*), 37, *Loader.*	Coal	Deceased was loading coal in a gallery when a mass of coal, 9′ × 4′ × 2′, fell from the side of the gallery, and fatally injured him. Inspection and inquiry made.
85	30th September, 5-30 A.M.	Lodna mine. Jharia P O., Bihar and Orissa.	Lodna Colliery Co. (1920), Ld.	Benedin Dubay, (*m.*), 46, *Sirdar.*	Coal	A mass of coal, 24′ × 24′ × 3′, fell from the side of a pillar in a depillaring section of the mine and killed a sirdar who was standing nearby. Inspection and inquiry made.
86	10th October, 4-30 P.M.	Hilloowala (No. 2 South-East) mine, Dandot P. O., Punjab.	Sant Ram Kapur .	Mohammad Ali, (*m.*), 40, *Coal-cutter.*	Coal	While ripping roof stone in a gateway a miner was struck by a mass of stone, 3′ 6″ × 2′ × 1′, which fell from a concealed "slip" at a height of about 4 feet. He was killed instantly. Inspection and inquiry made.
87	19th October, 5-30 P.M.	Victoria mine, Kulti P. O., Bengal.	New Beerbhoom Coal Co., Ld.	Roshka Manjhi, (*m.*), 25, Mangli Mejhian, (*f*), 19, *Loaders.*	Coal	While coal was being loaded in a gallery 8 feet high, a triangular mass of coal, 8′ × 8′ × 2′, fell from the side, and struck four of the loaders, inflicting fatal injuries on two of them. The other two were slightly injured. Inspection and inquiry made.
88	20th October, 8 A.M.	Kanakok mine, Palauk P. O., Burma	Lim Oo Ghine .	Sonnatanaw, (*m.*), 20, Bulenda, (*m.*), 20 *Tribute miners.*	Tin	Two miners were working in the bottom of a surface water channel, 20 feet deep, when a portion of the side collapsed and fell on them. They were killed instantly. Inspection and inquiry made
89	28th October, 4 A.M.	Mudidih mine, Sijua P. O., Bihar and Orissa.	Burrakur Coal Co., Ld.	Gulam Meah, (*m.*), 36, *Loader.*	Coal	While engaged at work in a depillaring area, deceased was struck and fatally injured by a mass of coal and stone, 13′ × 3′ × 1′ 6″, which fell from the side of a pillar at a height of 6 feet. Another miner received slight injuries. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents during the year 1932—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*concld.*			
			(*b*) Falls of side—*concld.*			
90	14th November, 4 P.M.	Tandaiya mine, Rajauli P. O., Bihar and Orissa.	Shyam Kanta Lal and Sri Kanta Lal.	Hulo Gope, (*m.*), 32, *Miner.*	Mica .	While a miner was working at the bottom of an opencast pit, 40 feet in diameter and 22 feet deep, he was struck by a mass of earth weighing about 2 cwt., which fell from the side from a height of 12 feet. He was fatally injured. Inspection and inquiry made.
91	25th November, 10 A.M.	Shwe Te Chaung mine, Palaw P. O., Burma.	L. R. Beale . .	Choudhury Ooriya, (*m.*), 25, *Miner.*	Tin .	Deceased was working in a surface cutting when a portion of the side collapsed. In attempting to run clear he fell down and an iron crowbar, which he was carrying, pierced his neck, killing him instantly. Inspection and inquiry made.
92	3rd December, 5-30 P.M.	Bararee mine, Jealgora P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Dularrin, (*f.*), 32, *Coal-carrier.*	Coal	While filling her basket with coal which had been blasted from the roof of a gallery, a woman was struck and fatally injured by a mass of coal, 6′ × 2′ × 1′ 6″, which fell from the side of a pillar, from a height of 9 feet. Inspection and inquiry made.
93	15th December, 12-30 A.M.	Angarpathra mine, Katrasgarh P. O., Bihar and Orissa.	Union Coal Co., Ld.	Mohabir Bhuiya, (*m.*), 36, *Coal-cutter.*	Coal .	While a miner was resting close to his working place, he was struck and fatally injured by a lump of coal, 2′ 6″ × 1′ 6″ × 1′, which fell from the side of a pillar from a height of 6 feet. Inspection and inquiry made.
94	17th December, 4 P.M.	Loyabad mine, Bansjora P. O., Bihar and Orissa.	Burrakur Coal Co., Ld.	Lilu Rai, (*m.*), 45, *Coal-cutter.*	Coal .	By robbing coal from the side of a gallery a miner caused a mass of coal, 6′ × 6′ × 1′ 6″, to fall from a concealed slip. He was struck by the falling coal and fatally injured. Inspection and inquiry made.
95	22nd December, 1 P.M.	Kolhiya mine, Junnerdeo P. O., Central Provinces.	R. S. Seth Gowardhandas.	Mirchlal, (*m.*), 35, *Labourer.*	Coal .	While a number of persons were working in an incline a mass of soft sandstone, 20′ × 8′ × 4′, fell from the side and buried two persons one of whom was killed. If the work had been properly supervised this accident should not have occurred.

96	24th December, 3-30 P.M.	Kitaburn mine, Chaibassa P. O., Bihar and Orissa.	Narendra Nath Kumar.	Lakhan Tanty., (*m.*), 22, *Miner.*	Chromite	While a miner was drilling a hole 20 feet from the foot of a quarry face a piece of stone weighing about 60 lbs. fell off the face from a height of 15 feet. He was struck by the stone and received injuries from which he died five hours later. Inspection and inquiry made.
	IN SHAFTS (WHILST ASCENDING OR DESCENDING BY MACHINERY)—(*1 death*).					
97	25th April, 10-30 A.M.	Angarpathra mine, Katrasgarh P. O., Bi and Orissa.	National Coal Co., Ld.	Khoda Bux, (*m.*), 47, *Pump-man.*	Coal .	While being lowered in a cage in a shaft, 175 feet deep, for the purpose of attending to some pumps, deceased fell from the cage to the bottom of the shaft, a distance of about 40 feet, and received injuries which proved fatal. It was presumed that under a misunderstanding he had opened the cage-gate and stepped out into the shaft. Inspection and inquiry made.
	IN SHAFTS (FALLING DOWN SHAFT)—(*1 death*).					
98	3rd August, 2 P.M.	Jarangdih mine, Bokaro P. O., Bihar and Orissa.	Bombay, Baroda and Central India Railway, and M. and S. M. Railway.	Kartik Meah, (*m.*), 35, *Labourer.*	Coal .	Deceased walked towards a shaft bottom presumably with the intention of retrieving his safety lamp which was on the opposite side of the shaft. He fell into the sump 60 feet below and was killed instantly. Inspection and inquiry made.
	IN SHAFTS (THINGS FALLING DOWN SHAFT)—(*4 deaths*).					
99	6th February, 12-30 P.M.	Lodna (No. 5 pit) mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co. (1920), Ld.	Jogdip Singh, (*m.*), 28, *Trolleyman.*	Coal .	While attempting to cross the bottom of a shaft a trolleyman was struck on the head by a piece of coal which fell from the surface. He sustained injuries which proved fatal. Inspection and inquiry made.
100	15th April, 6 P.M.	Jote Dhemo mine, Ukhra P. O., Bengal.	Jote Dhemo Colliery Co.	Sheik Huzad, (*m.*), 30, *Sinker.*	Coal .	In a sinking shaft, 60 feet deep, a basket containing stone had been raised when it struck against the landing platform. A piece of stone about 3" sq. × 1" thick fell off the basket and striking a sinker who was at work at the bottom of the shaft fatally injured him. Inspection and inquiry made.

APPENDIX VI—*contd.*

Fatal Accidents during the year 1932—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			IN SHAFTS (THINGS FALLING DOWN SHAFT)—(*4 deaths*—*contd.*			
101	24th April, 8-15 A.M.	Methani mine, Sitarampur P. O., Bengal.	Aldih Coal Co., Ld.	Burie Meah, (*m.*), 35, *Trammer's sirdar and onsetter.*	Coal .	While five persons in a cage were ascending a shaft, 957 feet deep one of them was struck and killed by a piece of pipe 1" diameter, which fell from a column of pipes at a point 200 feet from the top of the shaft Just before the accident occurred steam had been admitted into these pipes, and their consequent sudden expansion had presumably caused them to break loose from the clamps and swing out into the shaft so far as to be struck and broken by the descending cage. Inspection and inquiry made.
102	4th August 12 A.M.	Pure Jharia East mine, Jharia P. O., Bihar and Orissa.	Pure Jharia Colliery Co.	Jhuri Baurin, (*f.*), 25, *Coal-carrier.*	Coal .	At the top of a shaft, 86 feet deep, where buckets are used for winding, a wooden beam, 12' × 10" × 5", secured to the head-gear frame at a height of 20 feet, broke. A female coal-carrier riding in the bucket was struck by pieces of the beam which fell down the shaft. She sustained injuries which caused death within two days. Inspection and inquiry made.
			SUFFOCATION BY GASES —(*19 deaths*).			
103	12th April, 2 P.M.	Lady Rangi mine, Ganwan P. O., Bihar and Orissa.	F. F. Chrestien & Co., Ld.	Nineteen Males .	Mica .	The timber supports at the bottom of a shaft, 30 feet deep, and in a "drive" off the shaft caught fire, and the fumes from the fire were carried by the ventilating current into the workings of the mine. Of 38 men at work underground, 17 were asphyxiated by the fumes before they could reach the surface, and two died subsequently. The fire is believed to have been started by embers from a forest fire being blown into the shaft. Inspection and inquiry made.

BY EXPLOSIVES—*(13 deaths).*

104	4th February, 1 A.M.	Sripur mine, Kalipahari P. O., Bengal.	Lodna Colliery Co, (1920), Ld.	Maharaja Singh, (*m.*), 42, *Loader.*	Coal .	A miner neglected to take proper cover and was fatally injured by a small piece of coal projected a distance of 168 feet in the underground gallery by blasting operations. Inspection and inquiry made.
105	14th March, 3-30 P.M.	Mosaboni mine, Mosaboni P. O., Bihar and Orissa.	Indian Copper Corporation, Ld.	Dalbahadur Thappa, (*m*), 25, *Labourer.*	Copper, ore.	While a shot-hole was being drilled in an underground gallery, the drill struck a small quantity of gelignite left unexploded from a previous shot, and an explosion occurred. The three drillers working in the place were all injured, the injuries to one proving fatal. Inspection and inquiry made.
106	21st April, 8-30 P.M.	Pootkee mine, Kusunda P. O., Bihar and Orissa.	Eastern Coal Co, Ld.	Subalok Dosadh, (*m.*), 38, *Coal-cutter.*	Coal .	At the commencement of a shift a shot-firer placed his locked tin containing 5 lbs. of gunpowder at the side of a gallery while he examined adjacent working places. A miner interfered with the tin and caused the gunpowder to become ignited by the flame of his lamp He was severely burned and died the following day. Inspection and inquiry made.
107	29th April, 7-15 A.M.	Bawdwin mine, Namtu P. O., Burma.	Burma Corporation, Ld.	Rudra Dutt, (*m*), 28; Bir Singh, (*m.*), 26, *Miners.*	Silver-lead-zinc.	Three miners who were engaged in firing a round of eight shots in an underground drive, experienced difficulty in lighting one of the fuses and delayed too long. Before they could escape some of the shots exploded and all three were seriously injured. Two succumbed to their injuries some hours later. Inspection and inquiry made.
108	11th May, 2 P.M.	Kajora mine, Ondal P. O., Bengal.	Maharaja S. C. Nandi.	Kunja Behari Naw, (*m.*), 35, *Coal-cutter.*	Coal	After the fuse of a shot had been ignited in an underground gallery, a miner, in spite of warning, returned to the gallery to fetch his cloth. The shot exploded and he received fatal injuries. Inspection and inquiry made.
109	28th May, 4-30.	Bhamori mine, Parasia P. O. Central Provinces	Amalgamated Coalfields, Ld.	Suddhoo, s/o. Esri Ahir, (*m*), 35, *Coal-cutter.*	Coal .	A miner was killed when a shot blew through from a gallery which was about to join the gallery in which he was working. If the shot-firer had withdrawn persons likely to be endangered and fenced the place, as required by Coal Mines Regulation No 110, the accident would not have occurred. Inspection and inquiry made.
110	6th July, 10 A.M.	Radha Krishna mine, Sydapuram P O., Madras.	Kakirallagunta Mining Co	Valipi Sanyasi Gadu, (*m.*), 30, *Driller.*	Mica .	While a gang of three men were drilling a hole in a part of the mine worked by the previous owners, a charge of explosive in an old hole exploded The driller sustained injuries which resulted in his death The two hammermen, as well as another person who was resting nearby, were slightly injured. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents during the year 1932—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			BY EXPLOSIVES (*13 deaths*)—*contd.*			
111	14th August, 1 A.M.	Akhalpur mine, Charanpur P. O., Bengal.	Hurriladih Coal Co., Ld.	Bhagirath Kurmi, (*m.*), 34, *Shot-firer.*	Coal .	Under the impression that a missfire had occurred a shot-firer and his mate re-entered a gallery in which a shot had been ignited. The shot exploded fatally injuring the shot-firer. His mate received minor injuries. The accident was apparently the result of a 'hangfire' shot Inspection and inquiry made.
112	31st August, 10·30 A.M	Alkusa mine, Kusunda P. O., Bihar and Orissa.	Kanga & Co. .	Monohar Noonia, (*m.*), 29. *Loader.*	Coal .	While a coal loader was walking through a gallery he was struck and fatally injured by pieces of coal which were projected by a shot. If the place in which the shot was fired had been properly guarded, the accident would not have occurred. Inspection and inquiry made.
113	31st August, 10 P.M.	New Kenda mine, Toposi P. O., Bengal.	New Beerbhoom Coal Co., Ld.	Lakhi Ram Manjhi, (*m.*), 30, *Loader.*	Coal .	With the object of taking down some overhanging coal, three persons went through a fence into a level gallery. A shot, fired in an approaching gallery, caused a mass of coal to be projected towards them. One of them was killed, and the others received minor injuries. Inspection and inquiry made.
114	26th September, 5 P.M.	Faguni mine, Rajauli P. O., Bihar & Orissa.	Chatturam Darsan Ram.	Jamahir Singh, (*m.*), 20. *Shot-firer.*	Mica .	Twelve shots of dynamite had been fired in a sinking shaft in two simultaneous rounds of six, by two shot-firers. Owing to a miscount of the number of shots which had exploded, both shot-firers returned to the shafts as the 12th shot exploded, and were seriously injured. One succumbed to his injuries a few hours later. Inspection and inquiry made.
115	22nd October, 7-45 P.M.	Warcha mine, Warcha P. O., Punjab.	Government of India.	Alla Ditta, (*m.*), 25, *Miner.*	Salt .	While preparing cartridges underground from loose gunpowder, the powder became ignited and a miner was fatally burnt. Inspection and inquiry made.

HAULAGE—(*29 deaths*).

116	12th January, 5 P.M.	Jamuria mine, Charanpur P O, Bengal.	Equitable Coal Co., Ld.	Sukur Dosadh, (*m.*), 35, *Clip-man.*	Coal	While a train of three loaded tubs was moving slowly down an endless rope haulage slope, dipping at 1 in 15, it collided with two stationary tubs which were being loaded. The impact caused the two tubs to run wild to the bottom of the haulage slope a distance of 1,350 feet. Deceased was struck by the tubs and killed instantly. If the two stationary tubs had been properly spragged this accident would not have occurred. Inspection and inquiry made.
117	17th February, 6 A.M.	Katras mine. Katrasgarh P. O., Bihar and Orissa.	Burrakur Coal Co., Ld.	Gopi Shaw, (*m.*), 21, *Trolleyman.*	Coal	Deceased was struck and fatally injured by a tub which ran wild from the top of a haulage slope. Inspection and inquiry made.
118	20th March, 7-40 A.M.	New Damra mine, Kalipahari P. O., Bengal,	Ghusick and Muslia Collieries, Ld.	Abhiram Bauri, (*m.*), 34, *Trammer.*	Coal	While two trammers were pushing a loaded tub along an underground tramming road they were overtaken by another tub which gravitated down a slight gradient behind them. They sustained injuries to the feet and one of them died nine days later from tetanus. If the tubs had been properly spragged the accident would not have occurred. Inspection and inquiry made.
119	26th March, 7 A.M.	South Kujama mine, Jharia P. O., Bihar and Orissa.	Bagdigi Kujama Collieries Co.	Guju Mahato, (*m.*), 32, *Trolleyman.*	Coal	The derailment of three loaded tubs at a curve on an undulating underground tram line dislodged a prop. A trolleyman was struck by the falling prop and received injuries which proved fatal a few hours later. Inspection and inquiry made.
120	26th April, 1-30 P.M.	Jarangdih mine, Bokaro P. O. Bihar and Orissa.	Bombay, Baroda and Central India Railway, and Madras and Southern Marhatta Railway.	Mali Punjabi, (*m.*), 43, *Sirdar.*	Coal	While sitting at the entrance to an underground gallery from a quarry, a sirdar was struck by a loaded tub which, after running uncontrolled down a gradient of 1 in 80, became derailed at a curve. He sustained serious injuries and died one week later. Inspection and inquiry made.
121	5th May, 1 P.M.	Bara-Golai mine Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Dhan Bahadur Newar, (*m.*), 30, *Trammer.*	Coal	A loaded tub jammed on a tram level, and one of the two trammers pulled it from the front end and the other from behind. When the tub was on the move, the man in front stepped aside and was crushed between the tub and the side of the roadway. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents during the year 1932—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			HAULAGE—(*29 deaths*)—contd.			
122	29th June, 1-30 P.M.	Newton Chickli mine, Parasia P. O., Central Provinces.	Newton Chickli Collieries, Ld.	Umedi, (*f.*), 23, *Coal-filler*,	Coal	At the foot of a haulage slope a female loader was run over and killed by a set of tubs which had run wild due to the breaking of the drawbar of the front tub. Inspection and inquiry made.
123	1st July, 4-15 A.M.	Malkera mine, Katrasgarh P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ld.	Ali Bux, (*m.*), 38, *Trolleyman.*	Coal	While a train of three loaded tubs was being lowered down a haulage incline, graded at 1 in 5, the leading tub became uncoupled, ran uncontrolled for a distance of 70 feet and was then derailed at a crossing. A trolleyman who was sitting at the bottom of the incline was struck and fatally injured. Another trolleyman in attempting to escape ran into the side of a pillar and sustained serious injuries. Inspection and inquiry made.
124	3rd July, 4-30 A.M.	Bhurkunda mine, Bhurkunda P. O., Bihar and Orissa.	Secretary of State for India.	Sorahi (*m.*), 23, *Trolleyman.*	Coal	While a set of five loaded tubs was being hauled up a road way, the two rear tubs became uncoupled and ran back. A trolleyman was struck and fatally injured. If he had attached the drag, the accident would not have occurred. Inspection and inquiry made.
125	8th July, 4 A.M.	Dharmaband (New Tetturya) mine. Katrasgarh P. O., Bihar and Orissa.	New Tetturya Coal Co., Ld.	Hanif Meah, (*m.*), 15, *Door-attendant.*	Coal	Deceased was employed in opening and closing a ventilation-door on a tramming level. While a loaded tub was gravitating through the door he was struck either by the loaded tub or the door. He was thrown to the ground and sustained injuries from which he died forty minutes later. Inspection and inquiry made.
126	12th July, 1 P.M.	Newton Chickli mine, Parasia P. O., Central Provinces.	Newton Chickli Collieries, Ld.	Nannubibi, (*f.*), 50, *Labourer.*	Coal	While at work on an endless haulage line on the surface deceased was struck by the moving rope and sustained serious injuries. She succumbed to her injuries one month later. Inspection and inquiry made.
127	21st July, 9-45 A.M.	Datla mine, Junnardeo P. O., Central Provinces.	Amalgamated Coalfields, Ld.	Ramma Dhimar, (*m.*), 25, *Trammer.*	Coal	Against orders an underground trammer was riding up an incline on an empty tub when the tub derailed and he was run over and fatally injured. Inspection and inquiry made.

128	6th September, 5 A.M.	Aldih mine, Sitarampur P. O., Bengal.	Aldih Coal Co., Ld.	Mungia Chamar, (*f.*), 25, *Loader.*	Coal	While attempting to cross an underground haulage road in front of a set of empty tubs which was being lowered against a buffer a female loader was caught between the leading tub and the buffer She was fatally injured. Inspection and inquiry made.
129	6th September, 4-30 P.M.	Sodepur (9 & 10 pits) mine. Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Sitaram Manjhi, (*m.*), 37, *Trammer.*	Coal	While an empty tub was being hauled up a slope of 1 in 5, it became derailed at a crossing. Deceased, who was riding on the tub, was thrown off violently and sustained fatal injuries. Inspection and inquiry made.
130	10th September, 3 A.M.	Madhuban (Lodna Nos. 6 & 7 pits) mine, Jharia P. O., Bihar and Orissa.	Waliram Taneja & Co.	Budhu Bhuiya, (*m.*), 28, *Trolleyman.*	Coal	A trammer was struck and fatally injured by a set of 7 empty tubs which was being lowered down a haulage road. Inspection and inquiry made.
131	10th September, 7-35 P.M.	Barkui mine, Parasia P. O., Central Provinces.	Pench Valley Coal Co , Ld.	Budhoo Sweeper, (*m*). 45. *Sweeper.*	Coal	While a train of loaded tubs on an endless haulage] incline was being hauled up, the train ran away, due to the clips slipping, and overtook deceased, who was on the incline, injuring him fatally. Inspection and inquiry made.
132	14th September, 11-30 P.M.	Jamadoba mine, Jealgora P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ld.	Parameswar Singh, (*m*), 23, *Coal-cutter.*	Coal	Three mine cars were allowed to run wild on a gradient of 1 in 60 into the face of a gallery. Deceased who was working there, was struck by the leading car and killed instantly. Inspection and inquiry made.
133	22nd September, 1 A.M.	Katras mine, Katrasgarh P. O., Bihar and Orissa.	Burrakur Coal Co., Ld	Kari Chamarni, (*f*), 25, *Loader.*	Coal	Three loaded tubs standing against a buffer near the bottom of a haulage road, dipping at 1 in 7, were attached to seven empty tubs and after the set had been hauled 120 feet up the road a draw-bar link on the first empty tub broke. The set ran back and smashing the buffer, which consisted of two 8" diameter poles, overturned and came to rest 30 feet beyond it. A female coal-carrier was killed instantly and a miner was seriously injured by the runaway tubs. If the buffer had been more substantial the accident would have been avoided. Inspection and inquiry made.
134	3rd October, 5 P.M.	Sitalpur Mine, Dishergarh P. O., Bengal.	Bengal Coal Co., Ld.	Mulati Mejhian, (*f.*), 42, *Coal-carrier*	Coal	While a train of loaded tubs was being lowered into the shaft level the bulging sides of one of the tubs struck a tub which had been overturned against a stopping. Deceased who was standing behind the latter was fatally injured by being jambed between the tub and the stopping. Inspection and inquiry made.
135	22nd October, 4 P.M.	Ghorawari mine, Junnordeo P. O., Central Provinces.	Hirdagarh Collieries, Ld.	Tunda Chamar, (*m.*), 35, *Coal-filler.*	Coal	While a train of empty tubs was being lowered down a slope of 1 in 12, deceased rushed to the road to claim a tub. The leading tub became derailed and pinned him against the side of a pillar. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents during the year 1932—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			HAULAGE—(*29 deaths*)—*concld.*			
136	25th October, 1-15 P M.	Methani mine, Sitarampur P. O., Bengal.	Aldih Coal Co., Ld.	Daru Bauri, (*m*), 30, *Trammer*	Coal	While replacing a rope on the pulleys at a curve on an underground haulage a trammer received slight injuries to his fingers. Owing to his disregard of medical advice he contracted tetanus from which he died eight days later. Inspection and inquiry made.
137	2nd November, 3 A.M.	Kustore mine, Kusunda P. O., Bihar and Orissa.	Raneegunge Coal Association, Ld.	Kishen Lal Lalla, (*m.*), 35, *Sirdar.* Chota Mahato, (*m.*), 25, *Door-attendant.*	Coal	A set of ten mine cars was being lowered by an electric locomotive down a gradient of 1 in 6 to 1 in 8. The electric brake became inoperative and the set ran wild for a distance of about 1,000 feet, when the locomotive and several mine cars became derailed and overturned, inflicting fatal injuries on the deceased who were sitting down on the side of the road. The driver sustained slight injuries. Inspection and inquiry made.
138	16th November, 11-30 A.M.	Barkui mine, Parasia P. O., Central Provinces.	Pench Valley Coal Co., Ld.	Buddhu Gond, (*m.*), 50, *Tub-filler.*	Coal	While a haulage attendant was about to couple three loaded tubs, which he had left standing insufficiently spragged on a haulage incline, to a train of loaded tubs the three tubs ran down the incline and struck a miner who was fatally injured. Inspection and inquiry made.
139	8th December, 2-15 P.M.	Sawang mine, Bokaro P. O., Bihar and Orissa.	East Indian and Bengal Nagpur Railways.	Babulall Gope, (*m.*), 25, *Trammer.*	Coal	While a trammer was assisting in separating two tubs, the buffers of which had become interlocked, his arm was caught between the tubs and fractured. His injuries subsequently ended fatally. Inspection and inquiry made.
140	16th December, 8 P.M.	Jarangdih mine, Bokaro P. O., Bihar and Orissa.	Bombay, Baroda and Central India Railway, and M. and S. M. Railway.	Punit Beldar, (*m.*), 55, *Coal-cutter.*	Coal	On a haulage incline into a quarry, a prop which had been secured to two empty tubs of a set was dislodged when the set reached the bottom of the haulage. It fell down an embankment and struck a miner who had gone through a fence to retrieve his basket. He was fatally injured. Inspection and inquiry made.

141	25th December, 2-30 A.M.	Gopalichuck west mine, Kusunda P. O., Bihar and Orissa.	Gopalichuck Coal Co., Ld.	Tori Mullick, (*f.*), 35, *Loader.*	Coal	A trammer released four loaded tubs and allowed them to run 70 feet down a slight gradient to four stationary tubs. A coal-carrier was crushed between the stationary and moving tubs and received fatal injuries. If the trammer had taken the precaution to see that the line was clear before releasing the tubs or if he had lowered the tubs singly and under control the accident would have been avoided. Inspection and inquiry made.
142	27th December, 12-15 P.M.	Kargali mine, Bokaro P. O., Bihar and Orissa.	Great Indian Peninsula Railway.	Chainu Chamar, (*m.*), 30, *Coal-cutter.*	Coal	A runaway tub struck and fatally injured a miner, who, contrary to orders, was waiting on a haulage plane. Inspection and inquiry made.
143	30th December, 12 A.M.	Namdang mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Mihilal Lohar, (*m.*), 31, *Assistant Rope Mistry.*	Coal	Deceased was fatally injured in attempting to mount a set of moving tubs. Inspection and inquiry made.

SUNDRIES UNDERGROUND—(*7 deaths*).

144	8th February, 9-40 A.M.	Bhagaband mine, Jharia P O., Bihar and Orissa.	Borrea Coal Co., Ld.	Lakhu Kole, (*m*), 25, *Haulage khalassie.* Fakir Gope, (*m.*), 35, *Labourer.*	Coal	While the electric motor of an underground haulage engine was being cleaned with petrol the petrol was ignited and six workmen were severely burned. Two of them subsequently died. It was presumed that the bulb of an electric lamp used for inspection purposes was accidentally broken, and that the glowing filament of the lamp ignited the petrol vapour. Inspection and inquiry made.
145	2nd July, 8-5 A.M	Gua mine, Gua P. O, Bihar and Orissa.	Indian Iron & Steel Co., Ld.	Manu Rout, (*m.*), 28, *Quarry-man.*	Iron Ore	While a miner was working on the face of an iron ore quarry he slipped and fell 15 feet to the bottom of the face and received injuries from which he died one and a half hours later. Inspection and inquiry made.
146	2nd August, 7 P.M.	Bawdwin mine, Namtu P. O, Burma.	Burma Corporation Ld.	Bajir Singh, (*m.*), 27, *Miner.*	Silver-lead zinc.	While at work removing a staging in a chute, deceased fell a distance of 87 feet down the chute and was killed instantly. Inspection and inquiry made.
147	24th August, 1 P.M.	Jamadoba mine, Jealgora P O, Bihar and Orissa.	Tata Iron & Steel Co., Ld.	Butta Singh, (*m.*), 25, *Labourer.*	Coal	While a labourer was assisting in the raising of a locomotive, for the purpose of repairs, the locomotive slipped and crushed him severely. He died four months later. Inspection and inquiry made.
148	6th September, 11 P.M.	Bawdwin mine, Namtu P. O., Burma.	Burma Corporation, Ld.	Wan Kyone Yo, (*m.*), 27, *Miner.*	Silver-lead-zinc.	Deceased was repairing the bottom of a waste chute when there was rush of waste material which broke down the bottom of the chute. He was struck by the bottom boards and buried under the waste material. When extricated he was found to be dead. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents during the year 1932—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			SUNDRIES UNDERGROUND—(*7 deaths*)—*contd.*			
149	3rd October, 12-45 P.M.	Standard (Jharia Khas Section) mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Hurro Barhi, (*m.*), 38, *Timberman.*	Coal	Following the withdrawal of props in a seam 24 feet thick, a timberman jumped over a prop which was resting against a ledge at the side of a gallery. His foot struck the prop and dislodged it, causing it to fall across his leg. He sustained serious injuries from which he died four hours later. Inspection and inquiry made.
			BY SURFACE MACHINERY—(*1 death*).			
150	16th November, 5 A.M.	Salem mine, Salem Junction P. O., Madras.	Magnesite Syndicate, Ld.	Veerappan, (*m.*), 19, *Labourer.*	Magnesite.	Deceased attempted to investigate a temporary blockage in a grinding machine without informing the driver. His arm was caught in the machinery and he received injuries from which he afterwards died.
			ON SURFACE RAILWAYS AND TRAMWAYS BELONGING TO THE MINE—(*5 deaths*).			
151	9th March, 9-45 P.M.	Bhagaband mine, Jharia P. O., Bihar and Orissa.	Borrea Coal Co., Ld.	Paban Mahato, (*m.*), 36, *Labourer.*	Coal	Deceased was one of a gang engaged in hand-shunting wagons. While using a crowbar to move an empty wagon he slipped and fell down. His left leg was run over and he died two days later. Inspection and inquiry made.
152	15th March, 10 A.M.	Lekhapani mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Til Bang Naga, (*m.*), 25, *Labourer.*	Coal	On the surface of a disused mine two casual labourers tried to ride down a steep inclined plane on an empty tub. The tub derailed and one of the men was thrown against a stone piller and fatally injured. Inspection and inquiry made.
153	31st March, 9-30 A.M.	Bara-Golai mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Susila Kurmi, (*f.*) 45, *Trammer.*	Coal	While a woman was pushing a loaded tub on a surface tram line she was overtaken by a tub pushed by another trammer. Her leg was crushed between the buffers of the two tubs and she died of pneumonia after thirty nine days. Inspection and inquiry made.

154	29th July, 11-30 A.M.	Bejdih mine, Sitarampur P. O., Bengal.	Equitable Coal Co., Ld.	Aswini Bauri, (m.), 26, *Trammer*.	Coal .	While a trammer was dealing with a train of tubs on a surface endless haulage his head was crushed between the leading tub of th · train and the last of a train of standing tubs. He received fatal injuries. Inspection and inquiry made.
155	18th September, 10-30 P.M.	Ghorawari mine, Jumordeo P. O., Central Provinces.	Hirdagarh Collieries, Ld.	Ramdhani Baldiat, (m.), 40, *Handshunter and Loader*.	Coal .	Deceased was arranging coal in a stationery tub on a level line when a trammer pushed another tub towards it from behind. Deceased was caught between the two tubs and sustained fatal injuries. Inspection and inquiry made.
		BY ELECTRICITY—*(1 death)*.				
156	20th July, 10 A.M.	Wah mine, Wah P. O., Punjab.	Punjab Portland Cement, Ld.	Sher Zaman, (m.), 35, *Labourer*.	Limestone.	While attempting to rescue a man who had received an electric shock, a quarry labourer was electrocuted. Inspection and inquiry made.
		MISCELLANEOUS ON SURFACE—*(7 deaths)*.				
157	4th March, 5-30 P.M.	Kajora mine. Kajoragram P O., Bengal.	Roy Dutt & Co. .	Moti Lal Mochi, (m.), 35, *Labourer*.	Coal	While descending one of the upright members of a headgear deceased slipped and fell a distance of some 12 feet. He received injuries from which he died on the following day. Inspection and inquiry made
158	4th April, 10-30 A.M.	Mayangon mine, Mayangon P. O., Burma.	Khan Bahadur Ebrahim.	Ananta Ooryia, (m.), 22, *Loader*.	Stone .	A workman carrying a piece of stone on his head was crossing a plank, 10 feet long and 8 inches wide, which had been placed as a bridge between the top of a bank, 2 feet high, and level ground below, when the plank tipped sideways and he fell to the ground. He was fatally injured. Inspection and inquiry made.
159	23rd April, 10 A.M.	Kustore mine. Kusunda P. O., Bihar and Orissa.	Raneegunge Coal Association, Ld.	Kali Charan Dhaikar, (m.) 55, *Shale picker*.	Coal .	While a labourer was levelling coal in a railway wagon under a screening plant, one of the two ropes supporting a coal chute broke causing the chute to tilt and strike him. He lost his balance and fell 8½ feet to the ground, sustaining serious injuries from which he died nine days later Inspection and inquiry made.
160	27th May, 10-15 A.M.	Kustore mine, Kusunda P. O., Bihar and Orissa.	Raneegunge Coal Association, Ld.	Abid Khan, (m.), 38, *Electric fitter*.	Coal .	While a mechanic was dismantling an overhead electric supply line, he fell from a pole, 20 feet high, and sustained injuries from which he died nine hours later. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accident during the year 1932—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			MISCELLANEOUS ON SURFACE—(*7 deaths*)—*contd.*			
161	8th June, 12 A. M.	Tikwa mine, Rajauli P. O., Bihar and Orissa.	Chatturam Darsan Ram.	Bisna Hazam. (*m*), 25, *Labourer.*	Mica .	Five labourers were at work on an old mica dump situated on the side of a hill, when they dislodged some boulders which rolled down from a height of 10 feet. One of them was struck by a boulder and fatally injured. Inspection and inquiry made.
162	6th August, 12 A. M.	Banksimula mine, Charanpur P. O., Bengal.	Bengal Coal Co., Ld.	Behari Bhuiya, (*m.*), 40, *Loader.*	Coal .	Three men carrying a prop, 20 feet long, dropped it at a surface siding. One of them failed to throw the prop clear and received injuries from which he died shortly after. Inspection and inquiry made.
163	11th September, 11-30 A. M.	Bhulanbararee mine, Pathardih P. O., Bihar and Orissa.	Bhulanbararee Coal Co., Ld.	Tara Singh, (*m.*), 22, *Sand stower.*	Coal .	An attendant of a sand stowing plant climbed on a sand dump, 15 feet high, to push sand into a stowing bin. The side of the dump on which he was standing collapsed, and he fell with the sand into the bin. He was buried in the sand and died before he could be extricated. Inspection and inquiry made.

FATAL ACCIDENTS NOT INCLUDED IN THE STATISTICS—(*27 deaths*).

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Reason for exclusion.	Cause of accident and remarks.
1	14th January, 7-30 A. M.	Kustore mine, Kusunda P. O., Bihar and Orissa.	Raneegunge Coal Association, Ld.	Sahidon Bibi, (*f.*), 35, *Surface labourer.*	Coal	An accident under the Indian Railways Act.	While crossing a railway in the course of her employment, deceased was knocked down by a passenger train. She was killed instantly. Inspection and inquiry made.
2	29th January	Khewra mine, Khewra P. O., Punjab.	Government of India.	Allah Dad, (*m.*), *Drillman.*	Salt	Not an accident.	Deceased, who was working on a drilling machine, went a short distance from the working face to rest. His companion noticing that he was resting longer than usual went to call him but found him to be dead. Death was due to heart failure. Inspection and inquiry made.
3	3rd February, 1-30 P. M.	Bokaro mine, Bokaro P. O., Bihar and Orissa.	East Indian, and Bengal Nagpur Railways.	Budhan Bhuiya, (*m*), 6.	Coal	Not employed.	A child passed through a fence and was run over by a train of loaded tubs on a surface haulage road. He was severely injured and died on the following day. Inspection and inquiry made.
4	9th February, 3 P. M.	Datla mine, Junnordeo P. O., Central Provinces.	Amalgamated Coalfields, Ld.	Pancha Chamar, (*m.*), 23.	Coal	Not employed.	Deceased was run over and killed by a train on an underground haulage road. He was a fugitive from justice, and it was presumed that he met his death while seeking a hiding place in the mine. Inspection and inquiry made.
5	11th February, 10 A. M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co. (1920), Ld.	Sukhi Korain, (*f.*), 8.	Coal	Not employed.	Deceased was crossing a surface tramline when she was knocked down by a loaded tub which was being pushed along by a trolleyman. She sustained injuries which proved fatal. Inspection and inquiry made.
6	26th March, 2 A. M.	Joyramdanga mine, Asansol P. O., Bengal.	New Beerbhoom Coal Co., Ld.	Jeo Kole, (*m.*), 32, *Coal-cutter.*	Coal	Not a mining accident.	A miner sleeping on the verandah outside his quarters was struck by a pick, which apparently had fallen from two pegs driven into the wall 5 feet above him. He sustained a punctured wound over the heart and died within an hour. Inspection and inquiry made.
7	17th April, 9-30 A. M.	Sitanala mine, Bhojudih P. O., Bihar and Orissa.	Bengal Coke and Coal Products, Ld.	Ram Saran Thakur, (*m.*), 55.	Coal	Not Employed.	While illegally riding on a train of loaded tubs drawn by a locomotive on a surface tramline a villager was run over and fatally injured. Inspection and inquiry made.
8	27th May, 11 A. M.	Bhulanbararee mine, Pathardih P. O., Bihar and Orissa.	Bhulanbararee Coal Co., Ld.	Raghu Nandan Nunia, (*m.*), 5.	Coal	Not Employed.	Deceased was found drowned in a pool of water, 3½ feet deep. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents during the year 1932—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Reason for exclusion.	Cause of accident and remarks.
FATAL ACCIDENTS NOT INCLUDED IN THE STATISTICS—(*27 deaths*)—*contd.*							
9	4th June, about 1 A.M.	Pretoria mine, Charanpur P. O., Bengal.	Seebpore Coal Co., Ld.	Nagendra Bauri, (*m.*), 24, *Labourer.*	Coal	Not a mining accident.	The dead body of deceased was found at the bottom of a shaft, 340 feet deep. As the shaft was securely fenced on all sides it was assumed that the man had deliberately climbed over the fence and jumped down the shaft. Inspection and inquiry made.
10	11th June, 3 P. M.	Kajora mine, Kajoragram P O, Bengal.	Guzdar Kajora Colliery Co., Ld.	Chandamoni Bibi, (*f*), 25.	Coal	Not employed.	While crossing a surface tramline a woman was run over and killed by a locomotive. Inspection and inquiry made.
11	28th June, 2-45 P. M	Patmohna mine, Sitarampur P. O., Bengal.	North Damuda Coal Co. Ld.	Jota Bagdi, (*m.*), 20, *Labourer.*	Coal	Not a mining accident.	The body of deceased was found under a thatched roof which had been blown off a building on the previous day. Inspection and inquiry made.
12	2nd August, 11-30 A. M.	Huntodih mine, Mohuda P. O., Bihar and Orissa.	North West Coal Co, Ld	Ramdeo Beldar, (*m.*). 3.	Coal	Not employed.	While four tubs were being loaded with coal on a colliery depot, they moved down a gradient of 1 in 10. a child was struck and killed by the moving tubs. Inspection and inquiry made.
13	26th August, 11-30 A.M.	Jatachappa mine, Parasia P. O., Central Provinces.	Amalgamated Coalfields, Ld.	Paramlal Ahir, (*m.*), 7.	Coal	Not employed.	A child was found drowned in a water-tank. The tank was fenced properly. Inspection and inquiry made.
14	10th September, 1 P M.	Zawe mine, Tennasserim P.O, Burma.	Saw Lein Lee	Mg. Htu Shewe, (*m.*), 20, *Labourer.*	Tin	Not a mining accident	A hut was struck by a tree which was blown down while a strong wind was blowing. One occupant of the hut was killed instantly while the other was seriously injured. Inspection and inquiry made.
15	18th September.	Loyabad mine, Bansjora P. O., Bihar and Orissa	Burrakur Coal Co, Ld	Gurusahay Mahato. (*m.*), 24.	Coal	Not employed.	Deceased was found dead at the bottom of a disused airshaft. Inspection and inquiry made.
16	1st October, 4 P M.	Amlabad mine, Jealgora P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Krishna Rao, (*m.*), 42. *Coal-cutting machineman.*	Coal	Not an accident.	A coal-cutting machineman died underground from heart failure at the termination of his shift. Inspection and inquiry made.
17	3rd October, 2-30 P,M.	Jitpur mine, Bhaga P. O., Bihar and Orissa.	Bengal Iron Co., Ld.	Chaitoo Pashi, (*m*), 45, *Labourer.*	Coal	Not an accident.	While working in the pit, deceased took ill suddenly and died on reaching the surface. Death was due to heart failure. Inspection and inquiry made.

18	9th October	Pathargoria mine, Mohuda P. O., Bihar and Orissa.	B K. Mukherjee & Co., Ld.	Butni Gosain, (*f.*), 16.	Coal	Not employed.	A woman was found drowned in an old waterlogged incline which was not surrounded by a fence. Inspection and inquiry made.
19	10th October, 6 P.M.	Khas Jinagora mine, Jharia P.O., Bihar and Orissa.	J. & K. Ramji	Sarada Mahaton, (*f.*), 25, *Labourer.*	Coal	Not a mining accident.	Deceased was found drowned in a boiler feed tank containing seven feet of water. Inspection and inquiry made.
20	24th October, 7-30 P.M.	Amlabad mine, Jealgora P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Budhan Suri, (*m.*), 25, *Coal-cutter.*	Coal	Not a mining accident.	Deceased was drowned while bathing in a reservoir containing 7 feet of water. Inspection and inquiry made.
21	11th November, 7-30 A.M.	Phularitand mine, Katrasgarh P. O., Bihar and Orissa.	Chandanmull Indrakumar.	Lakhapatia Beldaria, (*f.*), 5.	Coal	Not employed.	Deceased was crossing a railway line when she was caught by a slowly moving wagon being pushed from behind. She sustained serious injuries to which she succumbed two days later Inspection and inquiry made.
22	18th November, 4 P.M.	Patmohna mine, Sitarampur P. O., Bengal.	North Damuda Coal Co., Ld.	Raghubir Kuiri, (*m.*), 32, *Coal-cutter.*	Coal	Not an accident.	While walking up a haulage incline at the termination of his shift, a miner suddenly collapsed and expired from heart failure. Inspection and inquiry made.
23	26th November.	Damagurria mine, Kulti P. O., Bengal.	Damagurria Coal Co. (1930), Ld.	Thatoo Manjhi. (*m*), 10,	Coal	Not employed.	While playing beside the return wheel of a surface endless rope haulage a boy took hold of the rope. His arm was drawn into the wheel and wrenched off. He died shortly after. The return wheel was fenced. Inspection and inquiry made.
24	7th December, 7 A.M.	Ghorawari mine Junnardeo P. O., Central Provinces.	Hirdagarh Collieries, Ld.	Batoo Ahir, (*m*) 40, *Shot preparer.*	Coal	An accident under the Indian Explosives Act.	While the floor of a powder factory was being cleaned an explosion occurred and a worker was fatally burned. As he was using an iron pick and shovel it was presumed that the gunpowder was ignited by a spark.
25	23rd December, 1-30 P.M.	Argada mine, Argada P O., Bihar and Orissa.	Bengal Nagpur Railway Co., Ld.	Aklu Dosadh, (*m*), 30; Shadi Meah, (*m.*), 24, *Labourers.*	Coal	An accident under the Indian Explosives Act.	While two persons were grinding gunpowder in a gunpowder factory, the powder became ignited by some cause which could not be ascertained. They received fatal injuries. Inspection and inquiry made.
26	30th December, 11 A.M.	Noamundi mine, Noamundi P. O., Bihar and Orissa.	Tata Iron & Steel Co, Ld.	Gura Munda, (*f.*), 1½.	Iron ore.	Not employed.	A block of iron ore weighing about 2 tons was dislodged from a quarry face 12 feet high. The block came to rest 10 feet from the foot of the face but two splinters off the block. weighing about 50 lb., were thrown a distance of 45 feet from the face where they struck and seriously injured two women. A child 1½ years old being nursed by one of the women was also struck and killed. Inspection and inquiry made.

APPEN

Table

Statement of fatal and serious accidents in and about Mines

FATAL

Province.	District and Mineral field.	Number of separate fatal accidents.	Number of deaths.						
			Under-ground.		Open workings.		Surface.		
			Males.	Females.	Males.	Females.	Males.	Females.	Total.
Assam	Lakhimpur—Makum coalfield.	7	5	...	...	...	1	1	7
Baluchistan . . .	Quetta . . .	...	...	...	...	...	...	...	...
Bengal (and part of Bihar and Orissa).	Raniganj coalfield .	57	36	5	...	...	3	...	44
Bihar and Orissa	Jharia coalfield .	66	60	8	...	...	4	...	72
	Bokaro ,, .	5	4	...	1	...	...	...	5
	Karanpura ,, .	1	1	...	...	...	...	...	1
	Giridih ,, .	7	6	2	...	...	...	...	8
Central Provinces	Chanda . . .	1	1	...	...	...	...	...	1
	Chhindwara—Pench Valley coalfield.	12	9	1	...	...	1	1	12
Punjab . . .	Salt Range coalfield .	1	1	...	...	...	...	...	1
	Total (Coal) .	137	123	16	1	...	9	2	151

DIX II.

No. 2.

regulated by the Indian Mines Act, during the year 1932.

ACCIDENTS.				SERIOUS ACCIDENTS.											
Death rate per 1,000 persons employed.				Number of separate serious accidents.	Number of persons seriously injured.							Serious injury rate per 1,000 persons employed.			
					Under-ground.		Open workings.		Surface.						
Underground.	Open workings.	Surface.	Underground, Open workings and Surface.		Males.	Females.	Males.	Females.	Males.	Females.	Total.	Underground.	Open workings.	Surface.	Underground, Open workings and Surface.
AL															
3·64	...	4·44	3·84	34	30	...	...	...	4	...	34	21·87	...	8·89	18·66
...	...	...	...	1	1	...	...	...	...	...	1	11·49	...	...	9·43
1·14	...	0·23	0·89	101	71	10	1	...	21	...	103	2·27	1·12	1·62	2·08
1·58	...	0·20	1·13	156	120	12	2	...	20	4	158	3·08	2·31	1·20	2·48
1·22	0·19	...	0·43	32	14	2	5	5	7	2	35	4·90	1·93	2·73	2·98
1·01	...	...	0·39	2	1	...	...	...	1	...	2	1·01	...	1·52	0·78
1·39	...	...	1·09	25	20	3	..	...	3	...	26	4·00	..	2·11	3·55
0·49	...	...	0·38	6	5	...	...	...	1	...	6	2·46	...	1·64	2·27
2·22	...	1·13	1·91	56	42	5	...	...	9	1	57	10·44	...	5·64	9·07
1·22	...	...	0·76	13	7	...	...	...	6	...	13	8·51	...	12·45	9·89
1·41	0·12	0·26	1·02	426	311	32	8	5	72	7	435	3·49	1·62	1·87	2·93

APPEN

Table

Statement of fatal and serious accidents in and about Mines

Province.	District and Mineral field.	FATAL								
		Number of separate fatal accidents.	Number of deaths.							
			Under-ground.		Open workings.		Surface.			
			Males.	Females.	Males.	Females.	Males.	Females.	Total.	
										IRON
Bihar and Orissa . .	Singbhum . .	1	...	...	1	...	...	...	1	
Burma . . .	Northern Shan States.	...	...	...	...	...	...	...	...	
	Total (Iron Ore) .	1	...	...	1	...	...	...	1	
										M ANGA
Central Provinces .	.....	1	...	...	2	...	...	...	2	
										LEAD
Burma . . .	Northern Shan States .	4	5	...	...	...	...	...	5	
										TIN AND
Burma . . .	.....	3	1	...	3	...	...	...	4	

DIX II—*contd.*

No. 2—*contd.*

regulated by the Indian Mines Act, during the year 1932—*contd.*

ACCIDENTS.				SERIOUS ACCIDENTS.											
Death rate per 1,000 persons employed.				Number of separate serious accidents.	Number of persons seriously injured.							Serious injury rate per 1,000 persons employed.			
					Underground.		Open workings.		Surface.						
Underground	Open workings.	Surface.	Underground, Open workings and Surface.		Males.	Females.	Males.	Females.	Males.	Females.	Total.	Underground.	Open workings.	Surface.	Underground, Open workings and Surface.
ORE															
...	0·37	...	0·28	1	...	...	1	...	...	...	1	...	0·37	...	0·28
...	...	...	...	1	...	...	1	...	...	...	1	...	27·03	...	17·54
...	0·37	...	0·27	2	...	...	2	...	...	...	2	...	0·73	...	0·54
NESE ORE															
...	0·97	...	0·67	3	...	...	1	1	2	...	4	...	0·97	3·24	1·35
ORE															
1·84	...	...	1·58	110	102	...	...	...	8	...	110	37·56	...	18·26	34·67
WOLFRAM ORE															
0·79	0·74	...	0·67	16	1	...	6	...	10	...	17	0·79	1·49	15·29	2·85

APPEN

Table

Statement of fatal and serious accidents in and about Mines

Province.	District and Mineral field.	FATAL								
		Number of separate fatal accidents.	Number of deaths.							
			Under-ground.		Open workings.		Surface.			
			Males.	Females.	Males.	Females.	Males.	Females.	Total.	
										CHROMITE
Bihar and Orissa . .	Singhbhum . . .	1	...	...	1	...	...	...	1	
										COPPER
Bihar and Orissa . .	.....	3	4	...	...	...	...	...	4	
										MI
Bihar and Orissa . .	.....	5	20	...	2	...	1	...	23	
Madras . . .	.....	1	1	...	...	...	...	...	1	
	Total (Mica) .	6	21	...	2	...	1	...	24	
										SA
Punjab . . .	.....	1	1	...	...	...	...	...	1	

DIX II—*contd.*

No. 2—*contd.*

regulated by the Indian Mines Act, during the year 1932—*contd.*

ACCIDENTS.				SERIOUS ACCIDENTS.												
Death rate per 1,000 persons employed.				Number of separate serious accidents.	Number of persons seriously injured.							Serious injury rate per 1,000 persons employed.				
					Underground.		Open workings.		Surface.							
Underground.	Open workings.	Surface.	Underground, Open workings and Surface.		Males.	Females.	Males.	Females.	Males.	Females.	Total.	Underground.	Open workings.	Surface.	Underground, Open workings and Surface.	
ORE																
...	0·79	...	0·74	1	1	...	...	...	...	...	1	...	...	...	0·74	
ORE																
3·15	...	...	2·24	8	5	...	...	...	3	...	8	3·94	...	5·77	4·47	
CA																
3·60	0·58	0·92	2·29	6	5	...	1	...	1	...	7	0·90	0·29	0·92	0·70	
1·54	...	...	0·54	...	...	...	...	...	...	...	...	...	...	...	...	
3·37	0·52	0·52	2·00	6	5	...	1	...	1	...	7	0·80	0·26	0·52	0·58	
LT																
1·31	...	...	0·83	11	6	2	...	...	3	...	11	10·50	...	6·82	9·09	

APPEN

Table

Statement of fatal and serious accidents in and about Mines

Province.	District and Mineral field.	FATAL								
		Number of separate fatal accidents.	Number of deaths.							
			Under-ground.		Open workings.		Surface.			
			Males.	Females.	Males.	Females.	Males.	Females.	Total.	
										MAGNE
Madras . . .	Salem	1	...	...	...	...	1	...	1	
										SLA
Bihar and Orissa . .	.....	...	...	...	...	...	...	...	...	
										LIME
Bihar and Orissa . .	.....	...	...	...	...	...	...	...	...	
Burma	.....	1	...	...	2	...	...	...	2	
Central Provinces .	.....	...	...	...	...	...	...	...	...	
Punjab	.....	2	...	...	1	...	1	...	2	
	Total (Limestone) .	3	...	...	3	...	1	...	4	

DIX II *contd.*

No. 2—*contd.*

regulated by the Indian Mines Act, during the year 1932—*contd.*

ACCIDENTS.				SERIOUS ACCIDENTS.												
Death rate per 1,000 persons employed.				Number of separate serious accidents.	Number of persons seriously injured.							Serious injury rate per 1,000 persons employed.				
					Underground.		Open workings.		Surface.							
Underground.	Open workings.	Surface.	Underground, Open workings and Surface.		Males.	Females.	Males.	Females.	Males.	Females.	Total.	Underground.	Open workings.	Surface.	Underground, Open workings and surface.
SITE															
...	...	6·33	1·00	...	...	..	...	...	...	...	...	...	...	...	..
TE															
...	...	...	...	2	...	...	1	...	1	...	2	...	4·67	.	9·35
STONE															
...	...	...	...	1	...	...	...	...	1	...	1	...	...	3·39	0·55
...	6·29	...	6·17	...	...	...	...	...	...	...	...	...	...	..	...
...	...	...	...	3	...	...	...	2	1	...	3	...	0·58	1·80	0·75
...	3·14	2·45	2·75	4	...	...	2	...	2	...	4	...	6·29	4·90	5·51
...	0·53	0·79	0·58	8	...	...	2	2	4	..	8	...	0·71	3·16	1·16

Table

Statement of fatal and serious accidents in and about Mines

FATAL

Province.	District and Mineral field.	Number of separate fatal accidents.	Number of deaths.						
			Under-ground.		Open workings.		Surface.		
			Males.	Females.	Males.	Females.	Males.	Females.	Total.
									STO
Bihar and Orissa .	.....	1	...	...	1	...	...	...	1
Burma . . .	.....	1	...	...	...	...	1	...	1
Madras . .	.....	...	...	...	...	...	...	...	...
	Total (Stone) . .	2	...	...	1	...	1	...	2
									CHINA
Bihar and Orissa .	.....	...	...	...	...	...	...	...	...
	Grand Total (All minerals).	163	155	16	14	...	13	2	200

DIX II—*contd.*

No. 2—*concld.*

regulated by the Indian Mines Act, during the year 1932—*concld.*

ACCIDENTS.				SERIOUS ACCIDENTS.											
Death rate per 1,000 persons employed.				Number of separate serious accidents.	Number of persons seriously injured.							Serious injury rate per 1,000 persons employed.			
					Underground.		Open workings.		Surface.						
Underground.	Open workings.	Surface.	Underground, Open workings and Surface.		Males.	Females.	Males.	Females.	Males.	Females.	Total.	Underground.	Open workings.	Surface.	Underground, Open workings and Surface.
NE															
...	0·38	...	0·30	2	...	...	3	...	...	...	3	...	1·13	...	0·89
...	...	20·00	0·52	2	...	...	1	...	1	...	2	...	0·53	20·00	1·04
...	...	...	...	2	...	...	1	...	1	...	2	...	0·74	2·78	1·17
...	0·11	0·41	0·18	6	...	...	5	...	2	...	7	...	0·57	0·82	0·62
CLAY															
...	..	...	...	1	...	...	...	...	1	...	1	...	...	2·38	0·82
1·54	0·34	0·28	0·98	600	431	34	26	8	107	7	613	4·19	0·83	2·16	3·0

APPENDIX II—*concld.*

Table No. 3.

Statement of fatal accidents in Mines regulated by the Indian Mines Act, during the year 1932, classified according to cause of accident.

Mineral worked.	Number of separate fatal accidents.	Number of persons killed.												Total deaths.	Death rate per 1,000 persons employed.			
		Explosions and ignitions of fire-damp.	Falls of roof.	Falls of side.	In shafts.	Suffocation by gases.	By explosives.	Irruptions of water.	Haulage.	Underground machinery.	Miscellaneous underground.	Surface.	By electricity.		Underground.	Open workings.	Surface.	Underground, workings and Surface. Open
Coal . .	137	7	49	39	6	...	7	..	29	...	4	10	...	151	1·41	0·12	0·26	1·02
Iron Ore .	1	...	...	...	...	...	...	...	...	...	1	...	...	1	...	0·37	...	0·27
Manganese Ore.	1	...	...	2	...	...	...	...	...	...	...	...	...	2	...	0·97	...	0 67
Lead Silver .	4	...	...	1	...	...	2	...	...	...	2	...	...	5	1·84	...	...	1·58
Tin and Wolfram Ore.	3	...	...	4	...	...	...	...	...	...	...	...	...	4	0·79	0·74	...	0·67
Chromite Ore	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	0 79	...	0·74
Copper Ore .	3	...	3	...	...	...	1	...	...	...	...	...	...	4	3·15	...	...	2·24
Mica . .	6	...	...	2	...	19	2	...	...	...	...	1	...	24	3·37	0·52	0·52	2·00
Salt . .	1	...	...	...	...	...	1	...	...	...	...	...	...	1	1·31	...	...	0·83
Magnesite .	1	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	6·33	1·00
Limestone .	3	...	...	3	...	...	...	...	...	..	...	...	1	4	...	0·53	0·79	0·58
Stone . .	2	...	...	1	...	...	...	...	...	...	...	1	...	2	...	0·11	0·41	0·18
Total 1932 .	163	7	52	53	6	19	13	...	29	...	7	13	1	200	1·54	0·34	0·28	0·98
Total of preceding year.	189	...	65	61	8	...	22	2	32	1	12	23	1	227	1·43	0·46	0·60	0·98
Difference .	—26	+7	—13	—8	—2	+19	—9	—2	—3	—1	—5	—10	...	—27	+0·11	—0 12	—0·32	...

APPENDIX III.

Statement of prosecutions under the Indian Mines Act, and Indian Penal Code, during the year 1932.

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number of persons convicted.	Number of Regulations, and Rules and Sections of the Act contravened.	Remarks.
Bengal	Bankura . .	1	2	2	Regulation 76 of the Indian Coal Mines Regulations, 1926.	
	Burdwan . .	1	1	1	Regulation 123 of the Indian Coal Mines Regulations, 1926.	
	Do. . .	1	2	2	Section 35 of the Indian Mines Act, 1923, and Regulation 4 of Notification No. M-1055, dated 7th March 1929.	
	Do. . .	1	2	...	Regulation 17 of the Indian Coal Mines Regulations, 1926.	Case dropped as accused could not be traced.
	Do. . .	1	1	1	Regulations 115, 143 and 146 of the Indian Coal Mines Regulations, 1926.	
	Do. . .	1	3	3	Sections 23(*d*), 28(*1*) and (2) of the Indian Mines Act, 1923, and Regulation 149 of the Indian Coal Mines Regulations, 1926.	
	Do. . .	1	2	2	Section 23(*c*) of the Indian Mines Act, 1923, read with rule 10 made by the Bengal Government under section 30 of the Indian Mines Act, 1923, section 28(*1*) of the Indian Mines Act, 1923, Regulation 149 of the Indian Coal Mines Regulations, 1926, and Bye-law 95 made under section 32 of the Indian Mines Act, 1923, read with Rule 9 of the rules made by the Bengal Government under Section 30 of the Indian Mines Act, 1923.	
	Do. . .	1	5	...	Regulation 3(1) of the Indian Metalliferous Mines Regulations, 1926	Acquitted,

APPENDIX III—*contd.*

Statement of prosecutions under the Indian Mines Act, and Indian Penal Code, during the year 1932—*contd.*

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number of persons convicted.	Number of Regulations, and Rules and Sections of the Act contravened.	Remarks.
Bengal—*contd.*	Burdwan .	1	3	3	Section 15 of the Indian Mines Act, 1923 and Regulations 23 and 24 of the Indian Coal Mines Regulations, 1926.	
	Do. . .	1	2	2	Regulations 126 and 127 of the Indian Coal Mines Regulations, 1926, and Rule 23 of the rules made by the Bengal Government under Section 30 of the Indian Mines Act, 1923.	
	Do. . .	1	1	1	Regulation 146 of the Indian Coal Mines Regulations, 1926.	
	Do. . .	1	1	1	.....	
	Do . .	1	2	1	Regulation 148 of the Indian Coal Mines Regulations, 1926.	Case against one of the accused dropped owing to his illness.
	Do . .	1	1	1	Bye-laws 48 and 51 made under Section 32 of the Indian Mines Act, 1923, read with Bye-law 31 and Regulation 146 of the Indian Coal Mines Regulations, 1926	
	Do. . .	1	1	...	Regulation 149 of the Indian Coal Mines Regulations, 1926.	Case dropped.
Bihar and Orissa.	Hazaribagh	1	1	1	Regulation 3(*I*) of the Indian Metalliferous Mines Regulations, 1926.	
	Manbhum . .	1	1	1	Rule 18 made by the Bihar and Orissa Government under Section 30 of the Indian Mines Act. 1923.	
	Do. . .	1	2	2	Regulation 137 of the Indian Coal Mines Regulations, 1926.	

APPENDIX III—*contd.*

Statement of prosecutions under the Indian Mines Act, and Indian Penal Code, during the year 1932—*contd.*

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number of persons convicted.	Number of Regulations, and Rules and Sections of the Act contravened.	Remarks.
Bihar and Orissa—*contd.*	Manbhum . .	2	2	...	Regulation 3(3) of the Indian Coal Mines Regulations, 1926.	One of the accused could not be traced and the case against the other accused was dropped.
	Do. . .	2	2	2	Section 15 of the Indian Mines Act, 1923.	
	Do. .	2	6	3	Regulation 17 of the Indian Coal Mines Regulations, 1926.	Three of the accused died.
	Do. . .	1	1	1	Section 15 of the Indian Mines Act, 1923, Regulations 70(2) of the Indian Coal Mines Regulations, 1926, read with Coal Mines Regulation 71 and Section 16 of the Indian Mines Act, 1923.	
	Do. . .	1	3	3	Regulation 149 of the Indian Coal Mines Regulations, 1926, read with Rule 9 made by the Bihar and Orissa Government under Section 30 of the Indian Mines Act, 1923.	
	Do. .	1	1	1	Regulation 95 of the Indian Coal Mines Regulations, 1926.	
	Do. . .	1	1	1	Regulations 82 and 84 of the Indian Coal Mines Regulations, 1926.	
	Do. . .	1	10	10	Regulations 82, 84 and 145 of the Indian Coal Mines Regulations, 1926.	
	Do .	1	2	2	Regulation 69 of the Indian Coal Mines Regulations, 1926.	

APPENDIX III—*contd.*

Statement of prosecutions under the Indian Mines Act, and Indian Penal Code, during the year 1932—*contd.*

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number of persons convicted	Number of Regulations, and Rules and Sections of the Act contravened.	Remarks.
Bihar and Orissa—*concld.*	Manbhum . .	1	3	3	Section 29(*j*) of the Indian Mines Act, 1923 and Rule 9 made by the Bihar and Orissa Government under Section 30 of the Indian Mines Act, 1923 and Bye-law 96 made under Section 32 of the Indian Mines Act, 1923, read with Coal Mines Regulation 149.	
	Do. . .	1	1	1	Rule 18 made by the Bihar and Orissa Government under Section 30 of the Indian Mines Act, 1923.	
	Do. . .	1	2	2	Regulation 137 of the Indian Coal Mines Regulations, 1926.	
	Do . .	1	5	5	Sections 23(*d*) and 28(2) of the Indian Mines Act, 1923.	
	Santhal Parganas	1	2	2	Regulations 13 and 38 of the Indian Metalliferous Mines Regulations, 1926.	
	Do. . .	1	2	2	Regulations 38, 40 and 41 of the Indian Metalliferous Mines Regulations, 1926.	
Central Provinces.	Chhindwara .	1	2	1	Regulation 4 of Notification No. M-1055, dated 7th March 1929.	One of the accused was acquitted.
	Do. . .	1	1	1	Regulations 109 and 110 of the Indian Coal Mines Regulations, 1926, read with Bye-law 15 made under Section 32 of the Indian Mines Act, 1923.	
Madras . .	Nellore . .	2	4	3	Regulation 18 of the Indian Metalliferous Mines Regulations, 1926.	Case against one of the accused was withdrawn as he had left for Europe.
	Total .	40	83	67		

APPENDIX IV.

Miscellaneous.

Statement No. 1.

LIST OF INSPECTION CIRCLES.

No. 1 Circle.	No. 2 Circle.
1. All mines in Baluchistan.	1. All mines in Assam.
2. All mines in Bihar and Orissa except mines in the District of the Santhal Parganas and such mines in the District of Manbhum as lie east of a line drawn from mile 175 on the Bengal Nagpur Railway to mile 169 on the Grand Trunk Road and continued in a straight line across the District.	2. All mines in Bengal. 3. Such mines in Bihar and Orissa as lie in the District of the Santhal Parganas and in the District of Manbhum east of a line drawn from mile 175 on the Bengal Nagpur Railway to mile 169 on the Grand Trunk Road and continued in a straight line across the District.
3. All mines in the North-West Frontier Province.	4. All mines in Bombay.
4. All mines in the Punjab.	5. All mines in Burma.
5. All mines in Rajputana.	6. All mines in the Central Provinces.
6. All mines in the United Provinces.	7. All mines in Madras.

Statement No. 2.

Names of persons to whom first and second class coal mine managers' certificates of competency and surveyors' certificates of competency were granted during the year 1932.

Certificates granted to holders of English certificates of competency.

(*a*) FIRST CLASS.

Name.	Number of Indian certificate.	Date of Indian certificate.	Number of English certificate.	Date of English certificate.
Llewellin, Gwyn . . .	364	12th April 1932 .	2228	3rd February 1928.
Underwood, John Herbert . .	365	Ditto .	2245	2nd August 1929.
Rosser, Rhys Pryce . . .	366	Ditto .	2288	26th July 1929

APPENDIX IV—*contd.*

Miscellaneous—*contd.*

Statement No. 2—*contd.*

Names of persons to whom first and second class coal mine managers' certificates of competency and surveyors' certificates of competency were granted during the year 1932—*contd.*

Certificates granted to holders of English certificates of competency—*contd.*

(*b*) SECOND CLASS.

Nil.

(*c*) SURVEYORS' CERTIFICATES.

Nil.

Names of persons to whom first and second class coal mine managers' certificates of competency and surveyors' certificates of competency were granted during the year 1932.

INDIAN CERTIFICATES.

(*a*) FIRST CLASS.

Name.	No. of certificate.	Date of certificate.	REMARKS.
Masters, Russie	211	12th April 1932.	
Mehta, Trambaklal Chaturbhuj . . .	212	Ditto.	

APPENDIX IV—*concld.*

Miscellaneous—*concld.*

Statement No. 2—*concld.*

Names of persons to whom first and second class coal mine managers' certificates of competency and surveyors' certificates of competency were granted during the year 1932—*concld.*

INDIAN CERTIFICATES—*concld.*

(*b*) SECOND CLASS.

Name.	No. of certificate.	Date of certificate.	REMARKS.
Sahgal, Siri Nath	464	12th April 1932.	
Kapoor, Bal Krishna	465	Ditto.	
Bagroy, Dasondhi Ram	466	Ditto.	
Tooley, Bal Ram	467	Ditto.	
Sanyal, Bimal Chandra	468	Ditto.	
Hasan, Anwarul	469	Ditto.	
Katumbe, Yeshwant Mahadeo	470	Ditto.	
Majee, Dakshineswar	471	Ditto.	
Roy, Radha Binode	472	Ditto.	
Badhwar, Inder Jit	473	Ditto.	
Bullock, William James	474	Ditto.	
Kanotra, Mehanga Mal	475	Ditto.	

(*c*) SURVEYORS' CERTIFICATES.

Kapoor, Bal Krishna	52	20th January 1932.	
Grewal, Sarwan Singh	53	Ditto.	
Sarkar, Amal Krishna	54	Ditto.	
Sarkar, Sachindra Kumar	55	Ditto.	
Roy Barman, Priya Nath	56	Ditto.	
Chakrabartti, Kaliah Chandra	57	Ditto.	
Mondal, Dhananjoy	58	Ditto.	
Roy, Mahadeb	59	Ditto.	

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